This is Gemini Launch Control. T-240 minutes and counting. T-240 and counting on the Gemini 9-A mission. At this point in the countdown, the Gemini Launch Vehicle has just joined the countdown. The spacecraft of the Gemini ...spacecraft started about 2:30 a.m. this morning, that is 2:30 EST at the 360 minute mark in the count. So, we now have the launch vehicle in, all the major elements are in the count at this point and all is going very well.

The Gemini Launch Vehicle was fueled last night in an operation that took about three hours and 15 minutes. Since the spacecraft count was picked up earlier this morning, all is going well.

The backup pilots for the mission, Astronauts Jim Lovell and Buzz Aldrin are aboard the Gemini Spacecraft making their checks. They have been in there for about two and a half hours at this time. They will continue all the preliminary checks pending the arrival of the prime pilots, Tom Stafford and Gene Cernan, later in the countdown. Stafford and Cernan should be up at this time and taking their physical and probably about to start breakfast. We will have a report on that as soon as we get that information on it. All going well now at T-238 minutes, 43 seconds and counting. This is Gemini Launch Control.

END OF TAPE

This is Gemini Launch Control T-235 minutes and counting. All going well in the Gemini 9 countdown at this time. We now have confirmation that the prime pilots for the mission, Tom Stafford and Gene Cernan were awakened in their Crew Quarters at the NASA Kennedy Space Center, Merritt Island, as planned in the astronaut countdown at 11 minutes passed the hour. They are just completing their physical examination at this time and will be sitting down to breakfast in about 5 minutes, or so. All going well with the astronauts in the Crew Quarters and with the countdown at Launch Complex 19. This is Gemini Launch Control.

END OF TAPE

This is Gemini Launch Control. T-208 minutes and counting. 208 and counting and all is going very well at Launch Complex 19 at the present time. The prime pilots for the Gemini 9-A mission, Astronauts Tom Stafford and Gene Cernan, are just about finishing up their breakfast at this time. They have one guest for breakfast at the Crew Quarters at the NASA Kennedy Space Center in Merritt Island, and that is .Donald K. Slayton, who is Director of Flight Crew Operations for the NASA's Manned Spacecraft Center.

Stafford and Cernan took their brief physical again a short while ago. Doctor Duane Catterson, who directed the physical, reported that there is no change in the status of either of the astronauts physically since their last physical two days ago. Both pilots were described as being in excellent spirits, as usual.

We have some weather conditions, which we'll go over extensively at this point, to cover the Cape area and the various contingency landing areas throughout the ground track. The weather forecast for launch time in the Cape Kennedy area is as follows: Scattered clouds, at about 3000 feet, winds from the northeast at 15 knots, a sea state off shore at four feet and a temperature expected to be about 75 degrees. In the Atlantic, we have acceptable landing conditions throughout, however, if we launch during the first window, we will overfly a rather extensive area of showers in the western Atlantic. If we launch in the second window, we will fly the west Atlantic showers as well as the shower area just north of the equator. In the mid-Pacific some 300 miles northeast of Honolulu, the forecast is for scattered clouds, winds from the east at 15 knots, a sea state of five feet. Western Pacific landing zone. About 700 miles southeast of Toyko, overcast sky with occasional rain, winds from the southwest, 12 knots, a sea state of four to five feet. In the eastern Atlantic landing zone, some500 miles west of the Cape Brady Islands, the forecast is for scattered to broken clouds, winds from the northeast at 12 knots, sea state of four feet. And in the prime landing in the west Atlantic, some 500 miles east of Miami also a forecast of scattered clouds, winds from the southeast 15 knots. All proceedin

'ell on the countdown at this time. The breakfast menu for astronauts Stafford and Cernan, was the usual astronauts fare of a choice of juice, fillet mignon, scrambled eggs, toast and coffee.

Coming up on T-205 minutes and counting. This is Gemini Launch Control.

END OF TAPE

This is Gemini Launch Control T-204 minutes and counting. T-204 and counting, and all proceeding excellently in the Gemini 9 countdown at this time. At Launch Complex 19 things are going well with both the Gemini spacecraft and the launch vehicle since the count began some 2 hours and 40 minutes ago. The back-up pilots for the mission, astronauts Jim Lovell and Buzz Aldrin have left the Gemini spacecraft, they have been in there for about 2½ to 3 hours and they will be back a little later in the count to make the final check and report to the prime pilots, Tom Stafford and Gene Cernan at the white room. Stafford and Cernan as reported eariler were awakened at the planned time in the countdown for 11:00 a.m. Eastern Standard Time. They've taken their physical and are just about finishing up breakfast at this time. They're due to depart their quarters at the NASA Kennedy Space Center at Merritt Island at 21 minutes past the hour, to proceed to the ready room to don their suits and make the final preparations for the mission. All going well in the count and all going well in the Crew Quarters at this time. T-202 minutes and 50 seconds and counting. This is Gemini Launch Control.

END OF TAPE

This is Gemini Launch Control at T-194 minutes and counting. T-194 all proceeding very satisfactorily with our checks at complex 19, with the Gemini spacecraft and launch vehicle. Astronauts Tom Stafford and Gene Cernan should be just about on their way now from the Crew Quarters at the NASA Kennedy Space Center Merritt Island, and starting the drive of some 7 miles to the ready room at Launch Complex 16 where they will don their space suits and make their final checks prior to departing for the launch pad at about 125 minute mark in the countdown. Their back-up pilots Jim Lovell and Buzz Aldrin have left the Gemini spacecraft they have been in it for some 2 hours and 45 minutes. As we prepare for the pressurization of the launch vehicle at 19, the complete area has to be evacuated at the time of pressurization of the launch vehicle, which is when we pressurize with the nitrogen at about 170 minutes into the count. Lovell and Aldrin will return to the spacecraft when the area is clear to make the final checks, and then they'll be ready to report to the prime pilots when they arrive at the white room. Our count with the Gemini Launch Vehicle also going very well, it was fueled in about 3 hours and 15 minutes last evening. Now, T-192 minutes and 35 seconds and counting. This is Gemini Launch Control, we'll now switch to the Mission Control Center in Houston. HOUSTON.....This is Gemini Control Houston. Our status board on the Manned Space Flight network is completely clean, in other words there are no pieces of equipment that cannot support the mission. At the present time the augmented target docking adapter

is nearing the end of the 27th revolution. It's present measurements in orbit are 161.9 nautical miles apogee, 161.5 nautical miles perigee; within 4/10 of a mile of being perfectly circular. Here in Mission Control the Green team of Flight Controllers that's been here since 9:30 Central Standard Time last night is still carrying the ball and the White team, the launch team, will be in, in about an hour. At T-191 minutes and 30 seconds this is Gemini Control.

END OF TAPE

This is Gemini Launch Control. T-184 minutes and counting. T-184, all going very well at this time. Astronauts Tom Stafford and Gene Cernan should be just about arriving at this point at the Ready-room at Launch Complex 16. They have cleared the White-room at the 109 foot level at Launch Complex 19 in preparation for the launch vehicle pressurization, which will be coming up in about 10 or 15 minutes from this time.

Above the spacecraft in the White-room, just above the hatches, located just between the two hatches so that it covers both of them if you will, there is a sign located above the hatches. The sign has two little rhyming couplets on it and it reads as follows, " WE WERE KIDDING BEFORE, BUT NOT ANYMORE. GET YOURSELF INTO SPACE OR WE'LL TAKE YOUR PLACE." And it is signed Jim and Buzz, of course for backup pilots Jim Lovell and Buzz Aldrin. All is proceeding very well at this point as far as the Gemini Launch Vehicle is concerned. We've just made some checks on the radio command guidance system, these checks appear to be going well.

T-182 minutes, 46 seconds and counting. This is Gemini Launch Control.

END OF TAPE

This is Gemini Launch Control. T-174 minutes and counting -- T-174. All going very well at this time at Complex 19. We'll be coming up on our launch vehicle pressurization some five or ten minutes from this time. This is when we pressurize the propellant tanks in the Gemini launch vehicle -- both stages -- with nitrogen building up to some 30 pounds per square inch in the first stage and about 50 to 55 pounds per square inch in stage number two. We have made one slight jump in the countdown, if you will. We're -- an event scheduled for the 60-minute mark in the count is occurring at this time. This is the so-called POGO activity in which we permit the oxidizer in the second stage to flow into a stand pipe -- a stand pipe that's specially built in the second stage area -- in order to suppress oscillations that could occur in the oxidizer system of the second stage. This usually comes at the 60-minute mark in the count. This is when we would open the prevalve -- the oxidizer prevalve -- to permit the flow of that nitrogen tetroxide oxidizer into the stand pipe area so that we will be able to suppress these oscillations;since the prevalves were opened on Wednesday's launch attempt and since they are still open at this time, the crew decided to go ahead with this particular test earlier, and it is in progress now. Astronauts Tom Stafford and Gene Cernan are at the ready room making their final preparations. They'll come to the pad some 30 minutes from this time. T-172 minutes, 14 seconds and counting. This is Gemini Launch Control.

END OF TAPE

This is Gemini Launch Control. T-164 minutes and counting. T-164. We've now completed our pressurization of the Gemini Launch Vehicle. All is looking well, and on our early checks since completing our pressurization a short while ago, show that we are getting good readings on the pressure in both stages. The backup pilots , Astronauts Jim Lovell and Buzz Aldrin, now have returned to the Gemini spacecraft. They spent some two hours and 45 minutes in it earlier and will go through some further checks pending the arrival of the prime pilots, Tom Stafford and Gene Cernan.

All is going well in our countdown at the present time. We'll now switch you to the Mission Control Center in Houston.

This is Gemini Control. The augmented docking adapter is now on its 28th revolution. It is over the north central portion of Africia. Earlier we reported that the network status was completely green, since that time a teletype transmitter at the Woomera, Australia station is apparently on the fritz, but the station can support, however.

A short while ago, Mr. Allen Sandy Sanderson, of the Space Flight Meteorological Group, here in Mission Control briefed the Mission Director and the Flight Director on the global weather picture. At T-162 minutes and 32 seconds, this is Gemini Control.

END OF TAPE

This is Gemini Launch Control at T-154 minutes and counting, T-154. All still proceeding very well with the countdown at this time. At Launch Complex 19, they're in the mist of a guidance control test between the mark 3 Burroughs computer and the Gemini Launch Vehicle. It appears to be going well at this time. Because of the problem we had on Wednesday that we scrub the launch that the ground support failure concerns with up-dating the spacecraft computer, we're going to make some extra checks and some extra data reports into the computer during todays countdown. The computer at the M'ssion Control Center in Houston will feed data up-date to the Gemini spacecraft computer here at Launch Complex 19, at the T-60 minute mark, T-30 minutes, T-15 minutes. We will feed the regular real-time up-date as we resume the count of T-3 minutes as reported yesterday the present plan is if we fail to get that up-date to the spacecraft T-3, we will still continue with the countdown and launch, using the latest data we ha e in the computer at that time. All is going well at T-152 minutes, 40 seconds in counting. This is Gemini Launch Control.

END OF TAPE

This is Gemini Launch Control. T-144 minutes and counting. T-144. All going well with the Gemini 9 countdown as it has been since the count picked up at about 2:30 EST, this morning.

The backup pilots, Jim Lovell and Buzz Aldrin, still in the Gemini 9 spacecraft, in the White room in Launch Complex 19. They are reporting readouts at the present time to the blockhouse on a number of different items in the spacecraft's system. The prime pilots, Tom Stafford and Gene Cernan, are still in the Ready-room at Launch Complex 16, nearby making the final preparations before departing for the Launch Complex in about 15 minutes from this time. All proceeding very well at T-143 minutes, 10 seconds and counting. This is Gemini Launch Control.

END OF TAPE

This is Gemini Launch Control. T-134 minutes and counting. All still going very well at Launch Complex 19, and in the Ready-room at Launch Complex 16, where the astronauts, Tom Stafford and Gene Cernan, now have their space suits on and are making final purge checks prior to departing from that area due on the countdown in about eight minutes from this time.

We're now aiming for a launch time of 11:39 and 33 seconds a.m. EST. We will have a built-in hold at the T-3 minute mark in the count.

At Launch Complex 19, they've gone through a status check for..of preparing for arrival of the prime crew. The crew will be inserted in the spacecraft at about the 115 minute mark in the count. Backups Jim Lovell and Buzz Aldrin still are in the Gemini spacecraft, as they have been for some...now a total time of some three and a half hours this morning, continuing the final checks and awaiting the arrival of the prime crew.

All systems looking good at T-132 minutes and 50 seconds and counting. This is Gemini Launch Control.

END OF TAPE

This is Gemini Launch Control T-131 minutes, 42 seconds and counting all still going well at the pad. To correct the launch time maneuver, announced launch time we're aiming for, is 8:39 and 33 seconds a.m. Eastern Standard Time. We'll have a hold at the T-3 minute mark, it's expected this hold will last some 4 minutes, or a little more than 4 minutes at that time. Aiming for launch time again at 8:39 and 33 seconds a.m. EST. Now T-131 minutes, 10 seconds and counting. This is Gemini Launch Control.

END OF TAPE

This is Gemini Launch Control. T-123 minutes and counting. Astronauts Tom Stafford and Gene Cernan are on their way to Launch Complex 19 and their Gemini 9 spacecraft. Just a matter of moments ago, they departed from the Ready-room at nearby Launch Complex 16 and will be at the elevator at 19 in a matter of a few minutes. Meanwhile at the Launch Pad, itself, we've gone through some status checks, some final status checks for a crew ingress, all major activities reported that they were go for Crew Ingress, this is the two pilots coming aboard the spacecraft about seven or eight minutes from this time.

We've completed a purge of the fuel cell of the Gemini spacecraft and it is also in a go position. About five minutes ago, the backup pilots, Jim Lovell and Buzz Aldrin exited from the spacecraft. They had come aboard shortly after 2:00 a.m. this morning and had spent most of the morning in the spacecraft making all the preliminary checks. They will be ready to report to Stafford and Cernan on their arrival in a matter of minutes from this time. T-121 minutes, 49 seconds and counting. This is Gemini Launch Control.

END OF TAPE

This is Gemini Launch Control. T-119, 13 seconds and counting. Astronauts Tom Stafford and Gene Cernan are now in the White Room -- the 102-foot level at Launch Complex 19 ready to go aboard the Gemini spacecraft momentarily. They are getting a quick briefing from their pad leader and from the backup crew, Astronauts Jim Lovell and Buzz Aldrin. Shortly they will be going over the shelf into the spacecraft itself. The pilots were awakened this morning at 4:11 EST. They took a quick physical. Dr. Duane Catterson reported that once again they were physically fit and in good spirits as usual. They sat down for breakfast, had the usual menu of a choice of juice, filet mignon, scrambled eggs, toast and coffee. Their one guest at breakfast was Deke Slayton, who is Director of Flight Crew Operations for the Manned Spacecraft Center. The astronauts departed the quarters at the NASA Kennedy Space Center Merritt Island about 5:21 A.M. EST, arriving at Launch Complex 16 some 30 minutes later. They spent the remainder of the time at the Ready Room at 16 donning their suits and making the final checks. They are now both aboard the spacecraft at this time, and the technicians will make the early preparations hooking them up electronically into the systems, and the Flight Surgeon is standing by in the Block House to start the first stage of tests which will be biomedical tests with the two astronauts in the spacecraft. There also will be a communications check as the starter. All systems still going very well. T-117 minutes, 30 seconds and counting. This is Gemini Launch Control.

END OF TAPE

This is Gemini Launch Control at T-114 minutes and counting. T-114, all still proceeding very ery well in the white room at Launch Complex 19. The countdown which now has been in progress for some 4½ hours is still going very well. Tom Stafford and Gene Cernan are being electrically connected into their cockpit, and should be coming on the line shortly to talk to the block house and Astronaut Bill Aldrin, who is Stoney, or the Spacecraft Communicator, located in the block house. All our check outs are still going very well at this time. We're aiming for a lauch time of 8:39 and 33 seconds a.m. EST, under the present parameters. We will hold at T-3 minutes for 4 minutes and 29 seconds. I want to correct one statement I made, Stoney, the Spacecraft Commuicator is Bill Anders in the block house. Bill Anders is the commuicator who will be talking with the pilots in the final phases of the count. T-112 minutes, 53 seconds and counting. This is Gemini Launch Control.

END OF TAPE

This is Gemini Launch Control. T-104 minutes and counting. 104 and counting. All still proceeding very well in this countdown, which has now been in progress about four and a half hours. The hatches on the Gemini spacecraft were just closed a matter of a minute or so ago. Tom Stafford, the command pilot's hatch was first closed at the 105 mark and about 10 seconds later, the pilot's, Gene Cernan, had his hatch closed. All is still proceeding very well at this point.

When the astronauts came into the White room, they brought a prop along with them. It was about two feet long and it was in the shape of a match. The crew requested that this match be brought back down from the White- room and presented to Martin Company Test's Conductor, Frank Cherry. Signifing that they want to have the match to help Frank to get the launch vehicle off today.

T-103 minutes and five seconds and counting. We now switch you to the Mission Control Center in Houston.

This is Gemini Control in Houston. At our Control Center, the white team of flight controllers have reported for duty and are manning the consoles at this moment. Our target vehicle is nearing the end of its 28th revolution and is now passing over the central Pacific. It's apogee is 161.9 nautical miles by 161.5 nautical miles. Our flight controllers are now standing by and will pick up, that is the flight team will pick up the control of this mission. Also on hand here at Mission Control is Chris Kraft our Director of Flight Operations, who has just come into the room. This is Gemini Control at 102 minutes, 14 seconds before the launch

END OF TAPE

This is Gemini Launch Control, T-94 minutes and counting. T-94 all still proceeding very satisfactorily at Launch Complex 19. Astronauts Tom Stafford and Gene Cernan now getting settled in their Gemini 9 spacecraft, and we're in the process of purging the spacecraft to bring it to 100 percent oxygen enviroment.. Meanwhile in the block house the crew is completing the checks on the final status of the spacecraft as for as the white room is concerned, and the crew in the white room will be ready to depart shortly as we begin the so-called break-down separation for the erector lowering, which will come in a matter of 10 or 15 minutes from this time. The astronauts have checked into the countdown and part of the over-all countdown, it all appears to be going well at the time. T-93 minutes and 7 seconds and counting. This is Gemini Launch Control.

END OF TAPE

This is Gemini Launch Control. T-84 minutes and counting. All is proceeding very well at Launch Complex 19. Astronauts Tom Stafford and Gene Cernan reporting to the blockhouse of some of the early events of their checkouts during this final phase of the countdown.

The launch crew in the blockhouse is about to start some Airborne Guidance checks between test kit in the blockhouse that simulates the General Electric Burroughs Command Guidance System and the Airborne Guidance System in the launch vehicle, itself.

All is proceeding very well at this time. We're still aiming for a launch time of about 8:39:33 EST, with a planned built-in hold of about four minutes and 29 seconds at the T-3 minute mark in the countdown. We now switch you to Gemini Mission Control in Houston.

This is Gemini Mission Control in Houston. Our target has now begun its 29th revolution. We have a report from the Wasp, the carrier located in the landing area designated PLA 1, the primary landing area. The Wasp is in its launch position, 500 statute miles southeast of Bermuda and approximately 1200 statute miles east of the Cape. Wasp reports that the weather is beautiful, with scattered clouds, visibility 10 miles, waves three feet in height, winds are southeast at eight to 15 knots, the temperature is 79 degrees F. This is Gemini Control, 82 minutes and 20 seconds prior to lift-off.

END OF TAPE

This is Gemini Launch Control T-74 minutes and counting. T-74 all still proceeding very well. The pad leader in the white room just reported just a few moments ago, that he, the last man in the white room was just about to leave. The white room is now being evacuated in preparation for lowering the 138 foot erector that still surrounds the Gemini Launch Vehicle and spacecraft at this time. Tom Stafford has reported in that it feels nice and cool in the spacecraft at this time, and now up to a 100 percent oxygen in the spacecraft and they have had permission to open their visors. Our count is continuing, all looking good. In the mean-time in the block house we're making some checks with the Air Force Eastern Test Range, and with the Mission Control Center in Houston to be sure that all of these key locations, will receive the lift-off signal occurs as planned at 8:39 and 33 seconds a.m., EST this morning. Now coming up on T-73 minutes and counting. This is Gemini Launch Control.

END OF TAPE

This is Gemini Launch Control coming up on T-64 minutes and counting. T-64 everything still going very well with our countdown. The augumented target docking adapter now in the early phases of its 29th revolution, and in the spacecraft at Launch Complex 19, the astronauts Tom Stafford and Gene Cernan has completed their check of all Switch List checks. This is a/switches in the cockpit to insure that they are in the proper position, for launch. Stafford also has just completed a series of ultra-high frequency communications checks from the spacecraft. We'll be coming up in a matter of a minute or so on a Status check for the erector lowering, this will be followed in about seven or eight minutes by bringing down that 138 foot erector, at Launch Complex 19. All is still proceeding very satisfactorily as the countdown has all morning. T-63 minutes, eight seconds and counting. This is Gemini Launch Control.

END OF TAPE

This is Gemini Launch Control. T-57 minutes, 13 seconds and counting. The 138 foot erector is now coming down at Launch Complex 19. When they first saw the sky as the erector moved back, Gene Cernan exclaimed, "Oh, boy" and Tom Stafford looking up declared that "it was a great day". The erector is now coming down, this is about a 10 minute operation.

The erector was run by a 150 horsepower motor in a winch system which first eases the erector back from the spacecraft's combination and then acts as a break as it eases the erector down to its down position at the pad. The operation should take about 10 minutes if all goes well, in the meantime the remainder of the aspects of the count going on at this time are all going well. T-56 minutes, 18 seconds and counting. This is Gemini Launch Control.

END OF TAPE.

This is Gemini Launch Control T-54 minutes and counting, T-54 and all going well with the countdown at this time. The erector is approaching its down position at the launch pad, all is going well with the erector lowering. As the astronauts Tom Stafford and Gene Cernan continue their check-outs in the spacecraft reporting back to the block house. Once we do get the erector down we will continue down with the count with some of the highlights being a report from the Flight Director at the T-40 minute mark on the status of the ATDA which is coming around its 29 revolution. We will also test the propulsion system in the spacecraft at about the 20 minute mark. We're aiming toward an ignition of T-0 of the Gemini Launch Vehicle at 8:39 and 30 seconds a.m. EST. Lift-off will come 3 seconds after ignition or 8:39, 33 EST. A built in hold to coincide our launch with the ATDA in orbit will be declared at the 3 minute mark in the count, duration of the hold, 4 minutes and 29 seconds. Now T-52 minutes and 43 seconds in counting. This is Gemini Launch Control.

END OF TAPE

This is Gemini Launch Control, T-44 minutes and counting. T-44. Our countdown continues to proceed very well at this time. From their perch in the spacecraft at Launch Complex 19, Astronauts Tom Stafford and Gene Cernan took a moment to look out a short while ago. They commented on a cloud that was passing over the spacecraft and Gene Cernan said from his location he could look over the beach at Cape Kennedy. He noted that the sun was shining and it looked very beautiful over there on the beach. He also noticed a helicopter in the area, it was heading the general direction toward Launch Complex 19. As far as our computer situation is concerned today, we thought we'd mention a few facts about it at this time. In view of the problem that did cause the postponement of the launch on Wednesday, we will update the computer, the spacecraft computer, with the proper flight parameters in the following manner. We will feed the data directly from the computer at Houston. We've already done this once at the T-60 mark. There will be direct feeds from the Houston computer to the spacecraft at T-30 and T-15 minutes in the count. After our hold at T-3 minutes when we resume the so called automatic update, will come from the GE Burroughs computer system here at the Cape and it will be fed through the ground support system, winding up with a signal being generated to the spacecraft. If as on Wednesday, this signal is not received by the spacecraft computer, we will continue the countdown using the latest update data that the computer already has stored and launch with that update data. We are still preceeding very well with the countdown. We're a number a minutes ahead on certain events. It's very possible that the so called static test of the spacecraft propulsion system which is due at the 20 minute mark in the count may come earlier.

As soon as the crew in the spacecraft and the crew in the blockhouse are ready, they will proceed with that test. We do not have a time on it now, but it may come earlier then the planned 20 minute mark in the count. We will now switch to the Gemini Mission Control Center in Houston.

This is Gemini Control in Houston. Our target vehicle at this time is on its 29 revolution. It is now coming up over the Carnarvon tracking station over Australia. Or at least within range. The target actually is still on a - off the west coast of Australia. Here in Mission Control our Flight Director has green and GO buttons from all his controllers. The countdown is proceeding and our Flight Director and our Flight Controllers are taking part in that countdown. Flight Director on duty with the White Team is Gene Kranz. Our Spacecraft Communicator this morning will be Astronaut's Neil Armstrong who is primary and Astronaut Dick Gordon assisting him. Mission Director, William Schneider of the Office of Manned Spaceflight in Washington is here and at his console as is our Flight Surgeon Dr. Owen Coons who will be on duty with the White Team this morning. In the viewing room early today were Dr. Robert Gilruth, Director of Manned Spacecraft Center and George Low, our Deputy Director. This is Gemini Control in Houston, 40 minutes, 37 seconds before liftoff. We are green and GO in Houston.

END OF TAPE.

This is Gemini Launch Control. T-34 minutes and counting. T-34. All still going excellently on Launch Complex 19 and our Gemini 9 countdown. As the ATDA target continues to swing around on its 29th revolution. At this point in our countdown, we are going through a series of flight control checks with the Gemini Launch Vehicle and overall telemetry checks between the launch vehicle and the Air Force Eastern Test Range Tracking Elements. During this phase of the count also, the automatic sequencer, the so-called master operations control system, has come into effect in the Gemini countdown. This is the sequencer that controls and commands many of the actions that will occur over the final phases of the count. It will command some ten activities and monitor some 25 of the functions until we get to the T-5 minute mark and then we have a completely automatic operation from T-5 down to ignition and liftoff. All systems and all checkouts still going very well at the Pad at the present time. At T-32 minutes and 50 seconds and counting, this is Gemini Launch Control.

END OF TAPE

This is Gemini Launch Control, T-24 minutes and counting. T-24. We're still a little bit ahead on certain aspects of the countdown, however, this will have no effect on our launch time whatsoever. It remains at 8:39 and 33 seconds A.M. EST. It has been reported a short while ago that we will be going on an azimuth of 87.4 degrees. In the meantime, we have completed testing of the spacecraft propulsion system, these are the thrusters at the base of the adapter of the Gemini spacecraft. We have fired the thrusters in a series of tests and that has been very satisfactory. These are the 25-pound thrusters at the base of the adapter and the astronauts have fired the thrusters to check them out in the three modes of yaw -- two modes of yaw and pitch. This is the propulsion system that will be used by the spacecraft in orbit. All is still going well. The thruster test, as reported, has been completed and now at T-23 minutes and counting. This is Gemini Launch Control.

END OF TAPE

This is Gemini Control T-14 minutes and counting. Here in Mission Control in Houston, we have had a final status check. Our Flight Controller, Gene Kranz, has received a green go from all his flight controllers. We also had a communications check with the worldwide tracking network and communications are loud and clear at all points. Our target vehicle is now in its 29th revolution over the Pacific Ocean, apogee 161.9 nautical miles, perigee 161.5 nautical miles. We launch this morning on an azimuth of 87.4 degrees to the northeast. And during the liftoff, we will attempt to note for you the liftoff time the start of the spacecraft clock which is synchronized with our ground clocks. The start of the roll program which is supposed to start at 19 seconds, the start of the pitch program, cabin pressure will give you a 50 second mark at which time the spacecraft and its launch vehicle will be moving 740 miles per hour or supersonic. We will note BECO, the booster engine cutoff point eight or 80 percent of the velocity needed for insertion at this time we are moving 18,000 feet per second. We will also note SECO, second stage engine cutoff and we will note whether we get a go for IVAR, which means that Tom Stafford will do the insertion velocity adjustment routine, firing his thrusters to correct any small inplane and velocity discrepancy, the go for IVAR will be given by our Flight Dynamics Controller, Ed Pavelka. At this time we turn you back to the launch team at the Cape.

This is Gemini Launch Control at T-12 minutes, 15 seconds and counting. All still going very well on the countdown at Launch Complex 19. During that status check on the spacecraft that was reported from Houston, the Command Pilot also checked in, Tom Stafford and reported that it looked very good. Here in the Control Center at the Cape now the backup pilots, Jim Lovell and Buzz Aldrin, along with Deke Slayton and Astronaut Pete Conrad are sitting near the old Cap Com position in the Mission Control Center, following the mission from here. At the launch pad, we are about to start one of the final key guidance checks between the Mod 3 Guidance System here at Cape Kennedy and the Gemini Launch Vehicle. We are getting reports that all is still going very well in the count at this time. T-11 minutes and 26 seconds and counting. This is Gemini Launch Control.

END OF TAPE

This is Gemini Launch Control, T-9 minutes and counting. All still going very well at Launch Complex 19. The Launch Vehicle Test Conductor has reported to all stations that we will have the planned built in hold at the three minute mark. Duration of the hold about four and a half minutes. Coming up in the countdown will be a status check of the various recovery systems by the Launch Vehicle Test Conductor. This is checking in with the various recovery elements including the helicopter. T-8 minutes and 31 seconds and counting. This is Gemini Launch Control.

END OF TAPE

This is Gemini Launch Control. T-4 minutes and counting T-4. We will be going into a planned built-in hold in the three minute mark in the count. Duration of the hold about four and a half minutes, aiming toward an ignition of the Gemini Launch Vehicle at 8:39:30 EST. We've gone through a whole series of status checks over the last several minutes. This included crewman one and crewman two in the spacecraft. Tom Stafford, when he reported in, used the term that his command pilot, Wally Schirra, used on the Gemini 6 Mission when it finally was launched. Stafford reported, "For the third time, Go," when he gave his status report. Gene Cernan reported a little after that as he thanked the crew for their efforts and suggested that they all take a vacation, but then pointed out that they shouldn't start until about two seconds after ignition which, of course, would be just prior to lift-off of the Gemini vehicle. Now coming up on the hold. T-3 minutes and holding. T-3 minutes and holding. The hold is expected to last for about four and a half minutes. We'll be resuming the countdown at 36 minutes and 30 seconds after the hour. This is Gemini Launch Control.

END OF TAPE

This is Gemini Launch Control. We're still at T-3 minutes and holding. Our checkouts during the hold period at the present time, all going well. We'll be picking up the count in about two minutes from this time, aiming towards a liftoff of 36 minutes and correction 39 minutes and 33 seconds after the hour. Once we do pick up the countdown one of the first activities once again will be the so called computer update. This is a feed from the GE Burroughs Guidance System to some ground systems here at the Cape and finally by radio frequency signal to the spacecraft itself. If this does not occur, if the information is either rejected or if the signal does not get to the computer as occurred on Wednesday, we still will continue our countdown and go with the update parameters that were loaded aboard from Houston at the T-15 Mark in the countdown. All systems still going well at this time. During the final phases of the count, we're all on an automatic sequence at this time. The supervisor of range operation will give a clear to launch at about 2 minutes and 30 seconds. The power transfer will go on internal power to vehicle at one minute and 30 seconds and counting. The engines will be gimbaled both two - ah thrust chambers on the first stage of the Gemini will be gimbaled at one minute 20 seconds. The astronauts will be alerted of this because they will be able to feel this motion, in the Gemini spacecraft. The prevalves in the second stage that permits the oxidizing fuel to operate in the second stage will be opened at the 35 second mark. We'll get ignition at the zero mark in the countdown with a liftoff about three seconds thereafter. We'll be picking up the count shortly, still T-3 minutes and holding at this time. About five or six seconds from now we will resume

the countdown. This is Gemini Launch Control, T-3 minutes and counting. T-3.

(PAUSE)

This is Gemini Launch Control, now at T-2 minutes and 30 seconds and counting. We have word here in the control center that the spacecraft computer has accepted the update information from the Mod three system. Of course informations also gone by hardline to the Gemini Launch Vehicle. T-2 minutes and 15 seconds and counting. The Air Force Eastern Test Range has given the block-house an OK to launch at this point. Coming up at T-2 minutes.

(PAUSE)

This is Gemini Launch Control, T-1 minute,40 seconds and counting. We have a report that there was a switch over in Houston but now we have confirmation that the update data is in the computer. The computer has accepted this update data at T-1 minute and 30 seconds and counting. T-1 minute and 20 seconds and counting. All appears to be proceeding well at this point in the countdown, during the final phases. The astronauts have been alerted and we have gimbaled those engines as planned. The engines have swung, the first stage engines and our checkout still continues at this point. Coming up on 1 minute. T-60 seconds and counting. T-60. T-50 seconds and counting. We will get ignition at zero in the countdown,some three seconds thereafter liftoff will come. During that period there will be a period of about 1.8 seconds where we possibly will have the capability of shuting down if necessary. T-35 seconds and counting. T-30. T-25 seconds and counting, we're on an automatic sequence, everything appears to be going well during this final phase. T-20 seconds and counting. T-15, T-10, 9, 8, 7, 6, 5, 4, 3, 2, 1, zero. We have ignition.

We have a liftoff. It looked like 39 minutes, 32 seconds after the hour. T plus 17 seconds.(T+17). Flight Dynamics reports the thrust looks good. The roll program has started. Roll program is completed. The pitch program has started. We have a liftoff time confirmed at 39:33 after the hour. We have reached 50 seconds into the flight. Spacecraft and its booster are moving at 740 miles per hour. We are now reaching for four nautical miles in altitude. T plus 1 minute and 20 seconds. The spacecraft is now approximately at the eight nautical miles in altitude the track looks good. We are about five nautical miles downrange. T plus 1 minute and 45 seconds and we are at 12 nautical miles downrange and approximately 16 nautical miles in altitude. The track still looks very good. T plus 2 minutes, 20 seconds. The flight crew have been notified that they are GO for staging. Spacecraft is now about 52 nautical miles - 50 nautical miles downrange and about 36 nautical miles in altitude and we have BECO, Booster Engine Cutoff. The thrust looks good. The track looks good. T plus 2 minutes, 50 seconds. Guidance Officer reports that the track looks real good to him. Flight Dynamics, Guidance and Surgeon all report that they look good. The spacecraft now is approximately 120 nautical miles downrange and approximately 60 nautical miles in altitude. Flight Dynamic says we're right down the middle. The vehicle is now about 70 nautical miles in altitude and approximately coming up on 200 nautical miles downrange. The track looks good, excellent. Flight Director, Gene Kranz has just completed a final status check. We are green and GO and that information has been passed on to Tom Stafford in Gemini 9. Gemini 9 is now 280 nautical miles downrange and approximately 80 nautical miles in altitude.

END OF TAPE.

....280 nautical miles down range and approximately 80 nautical miles in altitude. T+5 minutes. Track looks excellent. Gemini 9 is following our plot boards here perfectly. Point 8. We have reached 80% of the velocity needed for orbit. Flight Dynamics says the trajectory looks very good to him. T+5 minutes and 30 seconds. SECO. The second stage engine has cut off. Flight Dynamics has given a go for IVAR and that is being passed on to Tom Stafford by communicator Neil Armstrong. Go for IVAR. Stafford will burn his thrusters to correct any small in-plane and velocity discrepancies. (Pause)

T+6 minutes and 40 seconds. The indication from our Flight Dynamics Officer is that Tom Stafford is thrusting aboard Gemini 9. The thrust shows now, has been turned off. The thrust is off. Flight Dynamics says he looks real good. We are seven minutes, 37 seconds into the flight. According to our plot board data here, Gemini 9 should be in orbit. We do not as yet have any orbital values. As soon as we get them here we will pass them on to you. Meantime, now.....(Pause) T+8 minutes and ten seconds. T+8 minutes and 42 seconds. Spacecraft is now passing over the tracking range of the Bermuda station.

Nine minutes and 25 seconds into the flight. We have a preliminary estimate on that orbit now. 86 nautical miles perigee by 150 nautical miles apogee. These figures will be refined as we pass over the tracking station at Canary Islands. We will now play back the tape voice communication between the

flight crew and the ground controllers during the launch phase.

7 6 5 4 3 2 1 Ignition. Liftoff!

S/C We're all the way. Roger, started.

Roll program initiated.

HOU Roger, roll.

S/C Roll complete.

HOU Roll complete.

S/C Pitch program initiate.

HOU Roger on the pitch.

Mark 50 seconds.

S/C Roger, Mode II away here. Cabin ceil is 6.0.

HOU Roger on the cabin.

S/C garbled.

HOU We didn't copy that, Tom.

S/C .....sun right in my face .....(garbled)

HOU Still couldn't copy it, Tom.

S/C Roger. We got the sun in our eyes. Keep us closely advised, Neil.

HOU Oh, okay. I got you now. You're in Mode II now. Advise no DCS updates now.

S/C Roger, understand. No DCS updates.

HOU You're go for staging, Gemini 9.

S/C Roger, understand staging. We are go.

HOU Roger.

S/C And we have a beautiful fireball staging.

HOU Roger.

S/C Guidance Initiate, Neil.

HOU Roger, Guidance.

S/C The story looks real good.

HOU Roger.

S/C That's fantastic!

HOU Gemini 9, you're go on the ground.

S/C Roger.....go ahead.

HOU And advise you can expect some large out-of-plane on the IVAR which you won't burn.

S/C Roger.

HOU And you may have a little bit of out-of-plane steering building up at the end there.

S/C Okay. Looking for it, Neil. Roger, we've had a ....(garble).....and yaw start to build up to one degree, Neil.

HOU Roger.

S/C garbled.

HOU Mark, point 8.

S/C Roger..... SECO.

HOU Roger, SECO.

S/C IVI's read 60 forward.

HOU Roger, 60 forward. You're go for IVAR

S/C Go. .....read back....I'm reading 17 forward, 26 both for 153 down.

HOU Roger.

S/C .....(garbled).....SECO.....251714. Address .....is +0021.

HOU Roger. Say again Address 72. That's 25714?

That was the taped voice communication between Gemini 9 crew and the launch team at the Cape. And we have a note here from out surgeon, Dr. Owen Coons, on the heart rates of the pilots during the launch phase. Pre-launch, our command pilot Stafford's heart rate was 90. At liftoff, 100. During the launch phase peak, 140. Pilot Cernan: Pre-launch heart rate was 95; liftoff, 105; and during the peak launch phase, 120. This is Gemini Control. 18 minutes, 16 seconds into the Mission.

END OF TAPE

This is Gemini Control, we are 26 minutes and 25 seconds into our mission. At this time, the spacecraft and its target are passing over the tracking range of our Kano, Nigeria tracking station. The spacecraft is in an orbit of 86 nautical miles by 144 nautical miles. This is additional information on the orbit that was picked up at the Bermuda tracking site, from the Bermuda tracking data and this will be farther refined as we get the Canary Island data reduced. I would like now to take you back to the final moments of the countdown when we reported a switchover on our guidance here at Mission Control. What actually happened during the final minutes of the countdown, there was an attempt to put an update into the launch vehicle at T-3, this update did not go into the launch vehicle program, therefore, the switchover flashed here however, it had been decided if we did not get that countdown -- or that update in, we would go with the update that we put in at T-15 and so we did launch and everything was normal since we launched on the time that was programmed -- 8:39:33 and we launched on the second. So, the T-15 data was perfectly good. This is Gemini Control, 27 minutes and 56 seconds into the mission.

END OF TAPE

This is Gemini Control 29 minutes 45 seconds into the mission. The spacecraft is passing now over the African continent. We have just had loss of signal from Kano, Nigeria and at this time we will play back the voice tapes taken, - (interruption) Canary Islands and Kano.

CYI	Gemini 9, you are one Alpha time. 15 plus 55.
S/C	Gemini 9. Roger, 15 plus 55 one Alpha.
CYI	Roger.
AFD	Cap Com, AFD
CAP COM	AFD go ahead
AFD	Just want to confirm your liftoff time is 13:39:33
CAP COM	Roger.
S/C	Houston, Gemini 9, the primary scanners look good.
HOU FLIGHT	Roger, understand, you insertion thermer is 86 by 150.
S/C	Roger. Copied 86 by 150
HOU FLT	That is affirm.
S/C	Fuel quantity is 95 percent.
HOU FLT	And you liftoff time was on time. Three nine plus 33.
S/C	Roger, copied 13:39:33 liftoff.
HOU FLT	That is right.
CYI	We are 40 seconds to LOS.
HOU FLT	Canary Cap Com, Houston Flight.
CYI	Go ahead Flight.

HOU FLT Roger. We have passed the crew their liftoff time and also their thermers. The only major thing we have got over your site is a com check get this right at acquisition, get the status on their insertion check and we will try and get you the phasing maneuver out there. If we don't, we will voice remote through you.

CYI Roger.

HOU FLT Canary says ATDAM solid.

Roger.

HOU FLT Canary Cap Com, Houston Flight.

CYI Go ahead, Flight.

HOU FLT Roger, I have the 2-1 data if you are ready to copy.

CYI Go ahead.

HOU FLT 2-1 GETRC 01 26 31, RET 400K 07 plus 59 RETRV 14 plus 37 roll left 85 roll right 95. Read back please.

CYI GETRC 01 26 31, RET 400K 07 plus 59, RETRV 14 plus 37 roll left 85, roll right 95.

HOU FLT Okay, give that to the crew and get the contex.

CYI Roger.

HOU FLT Canary Cap Com, Houston Flight.

CYI Go ahead Flight.

HOU FLT Have you got acquisition yet?

CYI We have ac contact.

HOU FLT Okay, I will give you the phase adjust maneuver. Are you ready to copy?

CYI Roger.

HOU FLT GETB 49 plus 05, Delta V 73.6, Burn time 1 plus 39, yaw 0, pitch 0, address 25 00 736, 26 and 27 all z(garbled), thrusters aft, maneuver posigrade. This is the phase adjust maneuver.

CYI Roger, Flight. I have it.

HOU FLT Read back.

CYI GETB 49 plus 05, Delta V 73.6, Burn time 1 plus 39, yaw 0, pitch 0, address 25 00 736, addresses 26 and 27 all z (garbled), thrusters aft, maneuver posigrade. Phasing adjust.

HOU FLT Right.

CYI We have Gemini TM solid all signals are go, Flight.

HOU FLT Roger.

CYI Gemini 9, Canary Cap Com.

S/C Hello Canary. How are you?

CYI Roger, I have your phasing adjust maneuver. If you are ready to copy?

S/C (garbled)

CYI Roger, GETB 49 plus 05, Delta V 73.6, burn time 1 plus 39, yaw 0, pitch 0, address 25 00 736, address

CYI 26 all z(garbled), address 27 all z(garbled), thrusters aft, maneuver posigrade. Your phasing adjust. Do you copy?

S/C Canary, say again all through yaw zero, pitch zero, please.

CYI Roger. Address 25 00736, address 26 and 27 all zeros, thrusters aft, maneuver posigrade, phasing adjust.

S/C Canary, Gemini 9. Roger, I would like GETB, Delta V and Delta T, please.

CYI Roger, GETB 49 plus 05, Delta V 73.6, Delta T 1 plus 39.

S/C This is Gemini 9 Roger. Phasing maneuver 49 plus 05, Delta V 73.6, Duration is 1 plus 39, yaw 0 pitch 0, 25 is 00036, 26 is zero and 27 all zeros aft thrusters posigrade.

CYI Roger 9. That is correct.

S/C Any further check with Houston, please?

CYI Roger, thank you.
I have your 2-1 update.

S/C (garbled)

CYI Say again, Gemini 9.

S/C Stand by. We will copy in a minute.

CYI Roger.

CYI Flight, we have lost our 12 18. We will be back when we can.

HOU FLT Roger. We read you.

S/C Canary, Gemini 9. Go if you want.

CYI Roger. GETRC 01 26 31, RET 400K, 07 plus 59 RETRV 14 plus 37 roll left 85, roll right 95.

S/C Gemini 9, Roger. 2-1 GETRC is 01 26 31, 400k 07 plus 59, the first bank at 14 plus 37, left 85 degrees, right 95.

CYI Roger, Gemini 9. Stand by for UHF check when you are ready.

S/C Roger, switching over to UHF. We will give you a call in 30 seconds.

CYI Roger.

S/C Canary, this is Gemini 9 on UHF. Do you read me?

CYI Roger. Read you loud and clear Gemini. Let's go back to No. 1.

S/C Roger.

CYI Flight, we have good C-band track.

HOU Say again Canary.

CYI We have good C-band tracking, still looking good.

HOU Roger.

CYI We have target TM LOS.

HOU Roger.

CYI He still looks good, Flight.

HOU Roger, Canary.

Roger, Canary.

CYI He looks like he is making is horizon sensor check.

He is on his secondary now.

HOU Roger.

CYI We have Gemini LOS, Flight. All systems are go.

HOU Roger, good flight.

CYI Roger, Flight.

Flight,Canary. We will get a tape playback andget

you a summary as quickly as we can.

HOU Roger, thank you.

Canary, could we get a Bravo summary from you?

CYI Roger, Flight.

HOU Tana go remote UHF

Roger, wilco

HOU Gemini 9, this is Houston

S/C Roger, Houston

HOUSTON Roger, we would like to give you GET time hack.

That will be 25 15 and 3 seconds. Mark

S/C Roger, we are right on, water boiling and still

....

HOU Okay. And we are holding you 86 by 144 at Bermuda.

I would like to give you a new maneuver.

S/C Roger.

HOU Roger, we have an apogee of 147 now out of Canary

HOU so we will give you the maneuver changes based on that of Canary's.

Okay, are you ready to copy.

S/C Stand by.

HOU Okay, GETB is 4903, Delta V 75.0, Burntime 1 plus 40, address 25 is 00 750, all the rest are the same.

S/C Okay, we got GETB 49 plus 03, Delta V 75.0, 25 zeros, 26 zeros, 27 zeros, aft thrusters, posigrade.

HOU That is correct.

Houston is about one minutes until LOS

That was taped voice communications between Gemini 9 and our tracking stations at Canary Island and Kano, Nigeria. The spacecraft is now passing - has passed off the coast of Africa and has moved out in the Indian Ocean. Meantime, the crew has been given the update for their first maneuver. This is the phasing maneuver. The burn will take place at a ground elapsed time of 49 minutes and three seconds. The Delta V of the burn will be 75 feet per second. The Delta time for burn will be one minutes and 40 seconds. At this time, our spacecraft is approximately 15 miles below its target and the range between the spacecraft and the target is approximately 425 miles. This is Gemini Control at 40 minutes 38 seconds into the flight and at this time we have a tape voice communication between Gemini 9

and Tananarive tracking station. We will play that now.

HOU FLT Tananarive, Houston, go remote UHF.

TAN Tananarive remote.

S/C (Garbled)

HOU Gemini 9, Houston.

S/C This is Gemini 9, read you loud and clear.

HOU Roger, Tom, we have a pointing star for you. It is Theta Aquilla. That is 7 degrees down and one degree right.

S/C (Garbled)

HOU It is Theta Aquilla. It is on your SE-1 chart and it is close to Altair.

S/C Roger.

HOU And and Gemini 9, would you check your tape recorder power circuit breaker, please?

S/C (Garbled)

HOU We are reading you a little bit garbled, Tom. That was, check you tape recorder power circuit breaker.

S/C ...(Garbled)

HOU Houston is one minutes from LOS.

TAN Tananarive has LOS.

That was taped voice communications between the Tananarive tracking station, at least the Mission Control here remoting it through Tananarive and Gemini 9 crew. This is Gemini Control 42 minutes, 45 seconds into the flight.

END OF TAPE

This is Gemini Control, 1 hour and 29 seconds into the mission. Spacecraft is now passing over Australia on its first revolution. It is trailing the target at approximately 400 nautical miles. Carnarvon gave Tom Stafford a GO for 16 orbits during the pass over the tracking station. By this time Tom Stafford should have completed his phasing maneuver which was due to begin at a ground elapsed time of 49 minutes and 3 seconds. At this time we will play back the voice tape between the Carnarvon Tracking Station and Gemini IX.

HOU Carnarvon Cap Com, Houston Flight.

CRO Flight, Carnarvon, go ahead.

HOU Roger. I assume here at this discussion we didn't see any indications of tape motion on MA-95. Check it when it comes over your sight and let me know.

CRO Roger, will do.

HOU Okay, and if you get any sign during the pass and you still don't have any tape motion, we'll be talking to you, letting you know what our thoughts are.

CRO Roger.

HOU OK. We already had them check the tape recorder power circuit breaker on the right hand panel and he said he'd check it. If they'll check that they may 95 in your back room too.

CRO Roger sure will.

HOU Carnarvon, we're standing by.

CRO Roger. Carnarvon has ATDA telemetry solid.

HOU Roger.

CRO Telemetry go. Carnarvon has acq aid contact.

HOU Roger Carnarvon.

CRO We have telemetry solid and the spacecraft is fine.

HOU Roger. Roger.

Radiator look good?

CRO It's just within limits.

HOU Okay.

CRO We have C-band track.

HOU Roger.

Look like you have tape motion, Bill.

CRO The front room indicates it saw, I'm going to check with the back room.

HOU OK. You might have a patching problem there.

CRO Roger.

S/C Hello Carnarvon, Gemini 9.

CRO Go ahead Gemini 9.

S/C Roger, completed our burn right on time. The residuals were zero four (garble) zero. We're standing by for accelerometer bias check. We'll give you a call as soon as we have all addresses.

CRO Roger, would you give us that residual again please?

S/C Roger, address 80 was plus one tenth, 81 was plus two tenths, 82 - zero.

CRO Roger. We'll give you a GO on the rradiator you can place the evaporator switch/to normal.

S/C Roger. We've loaded all (garbled) towards 25, 6, and 7. Fixing to start counting.

CRO Standby one Gemini 9.

CRO Flight, Carnarvon

HOU Go Carnarvon.

CRO We're holding off on this just a second here, I've got telemetry problems.

HOU Okay. We'll have to tell the crew you've got ground telemetry problems. They'll have to standby.

S/C Gemini 9,Carnarvon.

CRO Carnarvon, niner GO.

S/C Heard you were having some telemetry problems. I'll give you a call as soon as we're set up here.

CRO Okay.

S/C Gemini 9, Carnarvon.

CRO Carnarvon, niner GO.

S/C Roger, will you cycle back to prelaunch and then back to catch up please.

CRO Roger, how about going to rendezvous.

S/C Okay. Roger we'll start the accelerometer bias check.

CRO Roger, start count with (garble).

S/C ANBL thats 16-12.

CRO Roger, your go for 16 one.

CRO Flight, Carnarvon.

HOU Go Carnarvon.

CRO Okay MA 95 the back room advises me that

HOU Roger, MA 95 is 77 percent.

CRO Thats affirm.

HOU Okay, we're going to check this out and see if we've got a patching problem here.

CRO Roger, did you copy those residuals on the burn.

HOU Affirmative.

CRO Roger.

CRO Gemini 9, Carnarvon. Would you place the quantity read switch to ECSO2?

S/C Coming to ECSO2.

HOU Thats CLSO2.

S/C Roger, CLSO2.

HOU Get some time Bill. Let's get a oams quantity.

CRO Okay. Onboard?

HOU Yes.

CRO Give us LH2.

S/C H2

CRO The quantity reads off.

S/C Roger its off.

CRO Would you give us an OAMS quantity readout?

S/C The OAMS quantity reads 82 percent.

CRO Roger.

HOU How are you doing in the accelerometer bias Bill?

CRO Real fine, just about finished.

HOU Okay, we're getting your messages.

CRO Flight, Carnarvon.

HOU Go, Carnarvon.

CRO Okay, we've completed the accelerometer bias summaries.

HOU OK.

CRO Gemini 9 Carnarvon, we've completed the accelerometer summaries.

S/C Fine, roger.

CRO Flight, Carnarvon.

HOU Go, Carnarvon.

CRO Do you want an LOS made on Gemini?

HOU Go ahead, yes.

CRO Flight, Carnarvon.

HOU Go ahead.

CRO Okay, we've had LOS on both vehicles. The only problem that I saw during the pass is on the spacecraft tape (garble), we've got a problem with it. You might have Hawaii check it.

HOU Right.

CRO Or the next state side pass.

HOU Okay spacecraft yaw.

CRO Thats affirm.

HOU Greater than 300 hours, right.

CRO Thats affirmative.

That was tape voice communication between Gemini 9 and the Carnarvon Tracking Station. You may have heard during that communication that the Carnarvon Station was having some telemetry problems with its ground equipment and had to switch to some backup equipment. Gemini 9 is now passing over the Pacific Ocean on its first revolution. The target has now been in orbit for more than 47 hours. This is Gemini Control, 1 hour, 7 minutes, 9 seconds into the flight.

END OF TAPE.

This is Gemini Control, one hour, 10 minutes, and 30 seconds into our mission. The spacecraft is now passing over the Pacific Ocean within range of the Canton Island Tracking Station. We have an update on our orbit values, as a result of the phasing burn made by the crew as they passed over the Carnarvon Tracking Station. Our new orbit is 147 nautical miles apogee by 125 nautical perigee. This is Gemini Control, 11 minutes now into the flight.

END OF TAPE

This is Gemini Control, we are 1 hour and 55 minutes and 20 seconds into our mission. The spacecraft and the target vehicle are now moving towards the coast of Africa. The west coast of Africa and within range of our Kano Tracking Station. We have some word from our Flight Surgeon, Dr. Owen Coons. He said the biomedical data on the crew is very good. We have some additional information on the next event which will occur. The corrective combination maneuver which will occur at a ground elapse time of 1 hour, 55 minutes and 17 seconds. This burn will be with the aft thrusters. Tom Stafford burning the aft thrusters to increase this velocity by 14.6 feet per second. Fourteen point six feet per second. The burn time will be 19 seconds, he will yaw 67 degrees left and pitch up 40 degrees. This burn will be followed with a second burn designated the NSR burn or coelliptical burn, designed to make the spacecraft orbit coelliptical. This will take place at a ground elapse time of 2 hours, 24 minutes and 51 seconds. Again the aft thrusters will be used. The burning will be at a rate of 54 feet per second and the burn time will be 1 minute and 11 seconds. The yaw will be three degrees left and pitch 41 degrees down. The corrective combination maneuver is designed to correct small discrepancies in the phasing, height and out-of-plane position of the spacecraft. The coelliptical burn of course is to make the orbit coelliptic. We have additional information, aboard the spacecraft, the jack outlet or plug similar to a plug that would be found in the ordinary home, this plug on the left side or at Cernan's* seat is presently inoperative. Stafford plans to work on it after rendezvous. This particular plug powers the camera or reticle and other items they may plug into it. If it

*Commentator meant Stafford's seat.

stays inoperative however, we will use the plug on Cernan's side which is operating. The spacecraft is in an orbit of 125 nautical miles by 150 nautical miles. The target 161 nautical miles circular. The TCM recorder on the spacecraft which was reported not in working order, is now in working order. At this time we would like to play back some of the taped voice communications as the spacecraft passed over the Hawaii tracking station, the state side tracking and Bermuda. If we get time the Ascension tracking station.

HOU Gemini 9, Houston standing by.

S/C Roger Houston.

HOU Gemini 9 Houston. Can you tell us whether you saw any drift on your IVI's during your accelerometer bias check.

S/C Roger. It just came out. Fighter, we saw the up mode to your one before we finally up to your one very small.

HOU Roger. Up went to one and left right went to one, is that right.

S/C Roger.

HOU Okay.

S/C (garbled)

HOU Standby, I don't think its required.

S/C Roger.

HOU We will update your accelerometer bias, over the states.

S/C Houston, say again.

HOU We will update your accelerometer bias over the states.

S/C Roger.

HOU Hawaii Cap Com, Houston Flight

HAW Flight, Hawaii.

HOU Roger. Jerry, you have the MI at 14:41, you've got the flight plan update, you've got the time of the 250 nautical mile range and your going to get the L-band beacon on, right.

HAW Roger.

HOU Okay.

HAW We have solid TM on the ATDA.

HOU Roger. You might check the clock too Jerry. TR clock.

HAW We haven't got the spacecraft yet.

HOU Roger, I know.

HAW Yea, we're straight up for that.

HAW Transmitting L-band on. Transmitting at the primary execute. Execute reset. We have L-band on.

HOU Hawaii Cap Com, Houston Flight.

HAW Flight, Hawaii.

HOU Roger. You can advise the crew that you've just turned the ATDA L-band on.

HAW Roger. And their clocked to be over me in one second.

HOU Okay, thats your TL clock.

HAW Roger. Spacecraft looking good flight.

HOU Roger.

HAW Gemini 9, Hawaii.

S/C Hawaii, Gemini 9.

HAW Roger. You look real good here on the ground.

HAW We have a 250 nautical mile range update for you.

S/C Roger, standby.

Well go ahead Hawaii.

HAW Roger. GET - 01:40:00

S/C Roger, 01:40:00.

HAW We also have a flight plan update for you.

S/C Roger. Go ahead.

HAW Node 01 13 39, rev 1-172.6 degrees west,right ascension 20 09.

S/C Roger. Node 01 13 39, rev 1 172.6 desrees west, right ascension 20 09.

HAW Roger, and we have turned the L-band on the ATDA and it looks good.

S/C Real fine.

HOU Hawaii we'd like an LOS on the ATDA.

HAW Roger.

HOU Hawaii are you tracking C-bands.

HAW Roger we have C-band.

HOU Okay.

HAW The beacon looks good.

HOU We also need your computer summaries Hawaii.

HAW Roger, its on its way.

HAW Gemini 9 Hawaii, we're LOS minus one and all systems look good.

S/C Gemini 9, Roger.

HAW Hawaii has LOS on both birds.

HOU Roger Hawaii.

California go remote

CAL California remote.

HOU Gemini 9 Houston

S/C Houston, niner go.

HOU Roger your 180 nautical miles, time is one plus 56.

S/C Roger one plus 56.

HOU An hundred nautical miles will be 2 plus 39.

S/C Roger.

HOU Okay, this current maneuver plan that we're working on Tom has got a Delta H as 12 nautical miles and a TPI 4 minutes before sun sets.

S/C Roger Delta H 12 miles, TPI 4 minutes before sun sets. Sounds real good.

HOU Roger. There'll be no stars for either burn.

S/C Say again.

HOU You won't have any stars for either burn. Ones in daylight and ones pointed down.

S/C Well now you've got to figure thats real hard to see stars.

HOU Roger.

Guaymas remote, California local

GYM Guaymas remote.

S/C Guaymas Gemini 9.

HOU Houston's on.

S/C Roger Neil. My left auxillary recepticle evidently the total unit over there is inoperative so we'll make a little break shift here and using some boards stretched across the cockpit to the reticle from the

S/C right auxillaries.

HOU Roger, understand. I guess both sides are on that same breaker.

S/C Right. This doesn't lead to the connector, the connector is loose on the receptacle but we got it.

HOU I'm with you.

S/C Squared away.

HOU Okay. Do you want to go to prelaunch now Tom for accelerometer bias change.

S/C Going to prelaunch.

Prelaunch.

HOU Okay.

Texas remote, Guaymas local.

GYM Guaymas local.

HOU Okay your bias is being changed now nine.

S/C Roger.

S/C (garbled)

HOU We didn't read you that time. Understand you did get a light.

S/C (garbled)

How do you read me on your(garbled)

HOU We're reading you loud with a little bit of garble Tom.

S/C Roger.

HOU Can you change - that receptacle cord from one side to the other for later in the flight.

S/C Its the receptacle itself Neil. We're going to still make this after we complete the rendezvous and check it out.

HOU Okay.

I advise your bias looks good now Gemini 9.

S/C Roger.

HOU Gemini 9, Houston, got your maneuver message when your ready to copy.

S/C Gemini 9, go.

HOU Okay, GETB 1 55 17, delta V 14.6, burn time 19 seconds, yaw 67, 67 degrees left, pitch 44 up, 44 up, address 25 000 41, address 26 90 10 2, address 27 000 97, aft thrusters, posigrade up north. Thats corrective combination. Go ahead.

S/C Roger Houston, Gemini 9. MCC at GETB 01 55 17, delta V 14.6, duration 19 seconds, yaw 67 degrees left, 44 degrees up, address 25 is 000 41, 26 is 90 10 2, 27 is 000 97, aft thrusters, up and north.

HOU Thats correct and posigrade and standby for NSR as soon as we get it.

S/C Roger we'll be stand.

ANT AOS Antigua.

HOU Okay standby for NSR.

S/C Go ahead Houston.

HOU Okay GETB 2 plus 24 plus 51, delta V 54.0, burn time 1 plus 11, yaw 3 left, pitch 41 down, address 25 00 40 9, address 26 00 35 2, address 27 00 02 0, aft thrusters, posigrade down north, thats NSR go ahead.

END OF TAPE.

S/C	Roger, NSR is 022451. Delta P 54.0, Duration is 1.+ 11, yaw is three lift, pitch is 41 down, 25 00 409, 26 00 352, 27 00 020, aft thrusters posigrade down and north.
HOUSTON CAP COM	That's correct, you're on your own now.
S/C	Roger, we're all set to go now.
HOUSTON CAP COM	Okay. 9, give you a GET time hack at 1 43 10 mark, 1 43 10.
S/C	Roger, we're right on, Houston.
GRAND TURK	LOS Grand Turk.
HOU CAP COM	Gemini 9, we're about half a minute from LOS, you still have a very small bias in the acceleremeter. Looks like for a worse case, PPI will be off about a couple of a tenths of a foot per second. You might have a look at it.
S/C	Roger, Houston, sure will.
ANTIQUA	Antiqua LOS.
HOU CAP COM	Gemini 9, Houston standing by.
S/C	Roger, just completed residuals. Gemini 9 has acq time, all residuals are 81 and 82.
HOU CAP COM	Very good.
S/C	Gemini 9, ...is 81%.
HOU CAP COM	Very good. Roger 81%.
HOU	Houston is one minute from LOS.

This is Gemini Control in Houston, we are now 2 hours, 12 minutes and 15 seconds into our mission. The spacecraft and the target are now passing over the tracking range of our Tananarieve station. Our next event will be the NSR or co-elleptic burn which is designed to put the spacecraft into a 147 nautical mile circular orbit. This will occur at a ground elapsed time of 2 hours, 24 minutes, and 51 seconds. Something like 12 minutes from now. After completion of this burn, four minutes later, the spacecraft range from the target will be 109 miles and it will be closing at 126 feet per second. This is Gemini Control, two hours, 13 minutes and 5 seconds into the mission.

END OF TAPE

This is Gemini Control two hours and 24 minutes and 17 seconds into our mission. In just a few seconds at 24 minutes, two hours 24 minutes and 51 seconds, Tom Stafford will start his co-elliptic burn. The co-elliptic burn will place the spacecraft into a circular orbit. The range at that time will be approximately 109 miles and he will be closing at about 126 feet per second. The Carnarvon station over which the spacecraft and the target are now passing has reported radar lock on. They have telemetry and radar and the burn has started. At this time we will play back the voice tape taken between the spacecraft and the Houston Mission Control Center remoting through the Tananarive station.

HOU Tananarive remote through UHF.

TAN Tananarive remote on UHF.

S/C This is Gemini 9....go.

HOU Gemini 9, Houston.

S/C (Garbled)

HOU Gemini 9, Houston. Gemini 9, Houston.

S/C Roger, Houston, Gemini 9. Go ahead.

HOU Roger, read you now. Give you a time hack here. It will be two hours 10 minutes and 20 seconds, Mark.

S/C Roger. We are right on.

HOU Okay, then four minutes after NSR your pointing will be 5.5 degrees above horizontal, azimuth 0,

HOU and your range 109 miles with range rate of 126 feet per second.

S/C Roger, understand. 109 miles and 126 feet per second.

HOU Roger, 5.5 degrees above horizontal.

S/C Just turned the cutoff, say again.

HOU Roger, that elevation was 5.5 degrees.

S/C Roger, 5.5.

HOU Roger.

S/C Houston, Gemini 9, are you trying to call?

HOU No, we weren't, Tom. Advise you are about 150 nautical miles. Have you had any radar acquisition blinking yet?

S/C Not yet. But we will give you a call when we do.

HOU Roger.

S/C Houston, Gemini 9.

HOU This is Houston, go ahead.

S/C Roger. ...radar lock on.

HOU Roger, can you read out that range please?

S/C We are 129.4 miles and we will get you a range rate shortly.

HOU Roger.

S/C I have lost radar lock. Just lost it.

HOU Roger, understand, you have lost it.

S/C Stand by.

Houston, Gemini 9, we get your range rate at 201 feet per second. I don't know how good that is.

HOU Roger, 201.

S/C Houston, Gemini 9, we are at 127 and a half miles range rate 190.

HOU Houston roger.

S/C Houston, Gemini 9. Estimate some ... elevation 6 and a half degrees.

HOU Houston, roger. And we are about one minute from LOS.

S/C Roger and the radar keeps breaking lock just as predicted.

HOU Understand.

TAN Tananarive has LOS.

This is Gemini Control at two hours 28 minutes and 30 seconds into the mission and we have just played back the voice tape between the Mission Control remote voice through Tananarive and the spacecraft. At this time the spacecraft and the target are passing over the tracking range of the Carnarvon, Australian station and we understand they have reported from Carnarvon that Tom Stafford has completed his co-elliptic burn. We will have the new orbit values as soon as they are plotted. Meantime at this time we will play back the voice communications between Carnarvon and the space-craft.

CRO Carnarvon Cap Com, AFD

AFD AFD Carnarvon

CRO Roger, Bill, you should have received a message all points to transmit a computer summary on the radar lock on. We have radar data for you.

AFD Roger.

CRO Okay, we have had some radar lock on with Tananarive and..

AFD Roger, that is normal Tananarive

CRO Okay, we could get MI, but we did not include the normal flight plan item. Also like you to give us range and range rates.

AFD Carnarvon Cap Com, AFD

CRO AFD, Carnarvon

AFD Roger, Bill, you should have received a message all sites to transmit a computer summary after radar lock on, at every radar data point.

CRO Roger.

AFD Okay, we have had some radar lock on over Tananarive area. And it breaks and it is just the way we figured it would be.

CRO Roger.

AFD We didn't - we sent you the MI, but we did not include the normal flight plan items.

CRO Okay.

AFD We would like you also to give some range and range rates.

CRO Roger, will do.

AFD Okay, we were going to have you update some other information, but it was done over Tananarive on the elevation range and range rates we have computed.

CRO Yeah, Neil intends to do that. He will pass all that stuff up. He doesn't have anything for us.

AFD He also reminded Bill about continuancy Bravo.

CRO Roger.

Carnarvon we are standing by for your pass.

CRO Roger.

Carnarvon has ATDA telemetry solid.

AFD Roger.

CRO All systems are go.

AFD Roger.

CRO Carnarvon has ac contact.

AFD Roger.

CRO Telemetry solid.

AFD Roger.

CRO All systems are go.

AFD Roger. Give me a mark when he starts the burn.

CRO Say again Flight?

AFD Give me a mark when he starts the burn.

CRO Will do, roger.

CRO Gemini 9, Carnarvon Cap Com.

CRO We are standing by.

S/C Should be burning shortly.

9.50 burn Mark burn.

CRO Mark burn.

S/C We are burning Carnarvon

CRO Roger.

HOU Flight Carnarvon

CRO Carnarvon.

HOU Is the radar still in and out?

CRO Okay, by the way, over Tananarive, we gave him that update on that NSR plus 4 data

HOU Roger, we copied.

CRO Mark end of burn. We have C-Band track, Flight.

HOU Roger. Can you give me any range or range rate readings though?

CRO She is not locked on, Flight, in and out.

S/C Tananarive, this is Gemini 9. The burn is complete. The residuals 0 and 81 is 1 and 82 is 1.

CRO Roger. We are standing by for your fuel cell purge.

S/C Roger, coming up on purge.

HOU Carnarvon, do we have another onboard computer summary?

CRO Roger. They are starting to purge.

HOU Roger.

CRO ...2 section 1.

HOU Roger.

CRO H2 section 2.

HOU Roger.

CRO Not having too much luck with this radar, Flight.

HOU Okay.

CRO 02 section 1.

HOU Okay.

S/C Carnarvon, Gemini 9. Purge hydrogen section one and two got a delta P light and presently purging oxygen in section one.

CRO Roger.

HOU Roger that is normal Carnarvon. That is affirm. Bill, when they finish the purge let's get an onboard OAMS prop quantity.

CRO Roger, will do. I don't think we are going to have any luck getting these quantity readings. We are coming uppretty close to LOS here.

HOU Okay, you have got a couple of minutes. Bill, you have got about two minutes left. You have got plenty of time.

CRO Okay. He has started section 02 section 2

HOU If you get pressed for time, Bill, you can delete the cyro quantities.

CRO Roger. Flight, Carnarvon.

HOU Flight, Carnarvon.

CRO The latest range radar we got was 646. That is from the computer.

HOU Okay.

CRO Also had parameter able dog zero two. It has been on through most of the pass. It is confirmed in the back room.

HOU Okay. Roger, could we have an LOS main on the ATDA, Bill.

CRO Roger.

HOU Okay, we would like an LOS Gemini main too.

CRO Roger.

HOU Give me a call, Bill, 30 seconds Los.

CRO Gemini 9 we are 30 seconds to LOS. (garbled) 20 seconds on the section 202 purge and did not get any lights.

HOU Roger, would it be possible for me to get an OAMS quantity readout before LOS here?

ROGER Reading 73 percent.

HOU Roger.

Carnarvon, we also need a Bravo.

CRO Roger.

Gemini 9 purge is completed everything looks good.

HOU Roger.

CRO Did you copy, Flight?

HOU That is affirmative, Bill.

Okay, we will see you the next time around Bill.

CRO Roger.

This is Gemini Control. Two hours 36 minutes and 10 seconds into the mission. We have completed the burn, the NSR burn, the co-elliptic burn. We do not have any values on our new orbit. As soon as they are plotted here, we will pass them on to you. The fuel cell purge was completed at this time the spacecraft is trailing the target by between 90 and 100 miles. This is Gemini Control two hours 36 minutes 35 seconds into the flight.

END OF TAPE

This is Gemini Control. Two hours, 40 minutes and 30 seconds into our mission. Gemini 9 and the target are moving now over the Pacific Ocean. Gemini 9 trails the target by approximately 88 miles at this moment. This is Gemini Control. Two hours, 40 minutes, 45 seconds into the mission.

END OF TAPE

This is Gemini Control at two hours, 54 minutes and 15 seconds into the mission. Gemini 9 and its target are now moving over the Hawaii tracking station. Tom Stafford reports he has radar lock on the target but he is having some trouble with the onboard computer when he puts it in the rendezvous mode. We will switch now to pick up that voice communication between Hawaii and Gemini 9.

HOU — Carnarvon Cap Com, Houston Procedures.

CRO — Go ahead, Procedures.

HOU — Okay, we're still standing by your Gemini bravo summary.

CRO — Stand by, one. We sent you a bravo.

HOU — Okay, we haven't gotten it yet.

CRO — We probably filled the pipe up with all those summaries.

HOU — Okay, stand by. Hawaii Cap Com, Houston Flight.

HAW — Flight, Hawaii.

HOU — Harry, do you have the 1608 ...?

HAW — Roger, we're going through it now.

HOU — Roger, very good.
Carnarvon Cap Com, Houston Procedures.

HOU — Hawaii Cap Com, Houston Flight.

HAW — Flight, Hawaii.

HOU — Roger, when you go through that sequence and you post back let us know what that ring B activity is off.....during the past.

HAW — Roger, will do.

HOU — Hawaii Cap Com, Houston Flight.

HAW Flight, Hawaii.

HOU It looks like you've got a normal pass. You've got those commands to send to the ATDA and G & C would like three OBC's, one at acquisition, mid-pass, and LOS.

HAW Roger, will do.

HOU Right. We'd like to have those OBC's cut one and a half radar lock.

HAW Rog.

HOU Okay, we'll keep the chatter down at this end of the loop and listen to you as you configure that ATDA.

HAW Do you want me to acknowledge the sequence, and you'll hear it.

HOU Yes, go through them, Harry.

HAW Roger, will do.

HOU If it doesn't give you too much trouble. If it does, just break off.

HAW Rog. We have initial contact of both vehicles.

HOU Roger.

HAW And solid C-Band.

HOU Roger.

HAW ATDA lights reset.

HOU Roger.

HAW Sep command number one. Sep command number two. Squib is armed. Primary executed. Execute reset. Sep one reset. Sep two reset. Squib one disarmed. Acq lights on.

S/C Hello, Hawaii. Gemini 9.

HAW Gemini 9, Hawaii.

S/C Roger. We've had a computer malfunction. We want to clue you in on it.

HAW Roger, go ahead.

S/C Roger. We noticed this after the NSR burn that every time we go from rendezvous back to catchup the comp light would come on without starting and the IVI's would display. Could show we're getting some signal in that would start the computation cycle. Okay, went to rendezvous and after the total data points when we got the first solution displayed, the start comp light came on and it cranked up the solution, what it would be for this range. And we were not given a second data point. We went to catch up mode and had the same values at catch up that we had in rendezvous and that's when the light was on which shows we're holding in the register. It appears that after every eight data points all we're getting is that solution and nothing more. Our Delta Delta R shows we're about two and a half miles high for fifteen which is 12.5. Our .....isn't too bad. And the radar is doing beautiful. You want to relay that on to Houston?

HAW Roger, will do. Everything is looking good here on the ground. We're sure that you've got solid

lock.

S/C Roger, we do have solid lock. Occasional break and the needles aren't too wild.

HAW Roger.

HOU Okay, Harry. Have you finished configuring the ATDA?

HAW Roger, we've completed.

HOU Okay, you've maps on all functions.

HAW Roger. How much of that analysis did you copy?

HOU I think we've copied all of it, Harry. We'll probably have some questions over the states here.

HAW Okay. I just wanted to say I can go back and get it off of the tape if I had to.

HOU Well, I think you ought to go ahead and start breaking it down as soon as you finish your pass.

HAW Okay, will do. Houston, Hawaii.

HOU Go ahead, Hawaii.

HAW Our 1218 is....

HOU Roger.

S/C Hawaii, Gemini 9. We're back in rendezvous mode to try to stay close. We're geting good Delta Delta R's out of our computation. We'll let you know when we get our next solution.

HAW Roger, will do. Did Houston say they'll talk to you about the problem over the states?

S/C Roger, it's just the same as if we'd start comp every

time we're in catch up or rendezvous mode.

HAW Roger, understand.

HOU You can tell him we confirm the Delta H, 12.5.

HAW Gemini 9, Hawaii. Houston says they confirm the Delta H.

S/C Roger.

HOU Harry, you can also advise the crew that we've configured the ATDA for rendezvous, all the lights are on.

HAW Roger, understand. Will do. We're not getting, I mean, we're still getting a switch from the dia-pole to spiral and we're showing solid lock here on the ground.

HOU Okay.

HAW Gemini 9, Hawaii.

S/C Go.

HAW The ATDA has been configured for rendezvous and all the lights are on at this time.

S/C Roger. Real fine. Hawaii, this is Gemini 9. We're presently 8 degrees and 76 points 67 miles range rate 126.

HAW Roger, copy.

S/C Hawaii, Gemini 9 is 8.6 degrees 7458 miles 125 range rate.

HAW We've had LOS both vehicles.

HOU Roger.

END OF TAPE

This is Gemini Control, three hours, two minutes, 43 seconds into the mission. We have just established voice communication with Gemini 9 from the stateside tracking stations and we switch now to pick up that communications.

S/C ....is..something is initiated the start com cycle. We noticed this just as we finished the NSR burn.

CAP COM Roger, we are with you. Just advise you here you've got less than one mile relative elipticity so its going to be reasonably easy to predict the proper TPI.

S/C Roger, our Delta Delta R shows we are in pretty good shape too up here.

CAP COM Roger

This is Gemini Control. Three hours, four minutes, 30 seconds into the mission and we are tuned in to pick up the live communication between stateside tracking stations and Gemini 9. We are standing by.

S/C Houston, Gemini 9, we are 9.6 degrees, 6.67 range, range rate 125.

This is Gemini Control. Three hours, eight minutes, 20 seconds into the mission. We are standing by to pick up communications between Gemini 9 and the stateside tracking stations in our Control Center at this moment. The backup crew of Jim Lovell and Buzz Aldrin have appeared along with Deke Slayton, the Director of Flight Crew Operations.

S/C Hello Houston, Gemini 9

CAP COM Go ahead.

S/C Roger. We are still aligning the platform here, Neil.

CAP COM — Roger, understand.

S/C — Houston, 9. Elevation 10.5 degrees, range 57.55, range rate 128.

CAP COM — Houston, roger.

S/C — Houston, Gemini 9. Elevation 11.1, range 55.49.

CAP COM — Houston.

S/C — Houston, Gemini 9. No elevation, range is 53.44, range rate 121.

CAP COM — Houston, rog.

S/C — Houston, this is 9. We are complete with the platform aligment, we are pitching up near the target.

CAP COM — Nine, Houston has TPI backup when you are ready to copy.

S/C — Roger, ready to copy.

CAP COM — Roger, GETB 33535, GTNSR 11044, Delta V 26.8, burn time 35 seconds, address 2500231, address 26 - 90134, address 27 - 90020, that's 26.7 forward, 1.3 up, 2.2 right. The range - 28.4 nautical miles, range rate 115, azimuth 0.5 left, elevation 27.4 up.

S/C — Roger Houston, GET burn 033535, GTNSR 011044, Delta V 26.8, Delta P 35 seconds, 2500235, 00231, 2690134, 2700020, 26.7 forward, 1.3 up, 2.2 right, range 28.4, 115 range rate. Azimuth 0.5 left, elevation 27.4 up.

CAP COM Houston, roger.

S/C Houston, Gemini 9. Say again GET burn, please.

CAP COM Roger. It's 33535.

S/C That's 033535. Thank you.
Neil, we've had another com cycle, its done exactly the same as the previous cycles. As soon as the first solution was displayed it went to the total vector to rendezvous at that point.

CAP COM That's correct, understand.

CAP COM Gemini 9, Houston.

S/C Houston, go.

CAP COM Roger, Tom. I'm sure you have been looking at this, our estimate for the time to switch into rendezvous mode is at 15.3 degrees or three hours and 20 minutes 05 seconds.

S/C Roger. That's pretty close to what we've come up with. We're going ahead and putting some addresses in the computer and checking them now.

CAP COM Roger. Your darkness time, your TPI is currently five minutes, about five and a half minutes before sunset.

S/C Five and a half before sunset.

CAP COM Did you switch into rendezvous now?

S/C Roger, we are switched into rendezvous.

CAP COM Houston, we are about a minute from LOS. About what time did you switch into rendezvous?

S/C Hello Houston, Gemini 9.

CAP COM Roger.

S/C I've got a real faint light out there by reticle, its still too early to tell.

CAP COM Good show. Can you tell us what time you went into rendezvous mode?

S/C I've got it. I've got him in reflected satellite now as about a six magnitude star.

CAP COM Roger, good.

S/C Houston, Gemini 9. The boresight between the optics and the radar looks very good.

CAP COM Very good, we are approaching LOS.

S/C Roger.

That was voice communication live between Gemini 9 and the stateside tracking stations, also the Ascension Island tracking station, I mean, pardon, correction here, I mean Bermuda and Antigua. The spacecraft is now approximately 25 to 30 miles trailing the target and you heard Tom Stafford that he thought he saw a real faint light in the direction of the target, that it was too early to tell. This could be the acquisition light of the target vehicle and if so, the target would have the shroud separated. However, it is too early to tell whether that light he did see was the acquisition light or beacon, on the target. This is Gemini Control. We are three hours, 23 minutes and 35 seconds into our mission.

END OF TAPE

This is Gemini Control. Three hours, 35 minutes into the mission. Gemini 9 and its target are passing over the Ascension Island tracking station area. The range between the spacecraft and the target is now between 25 and 30 miles. The terminal phase initiation or forward burn has been initiated. This is Gemini Control. Three hours, 35 minutes, 30 seconds into the mission and at this time we will play back the taped voice communication between the spacecraft communications here at Mission Control remoting through Ascension to Gemini 9.

HOU Gemini 9, Houston standing by. Gemini 9, Houston standing by.

S/C Garbled.

HOU Roger, okay, Tom, it won't hurt you if you go ahead and press start comp after you get your solution.

S/C Roger.

HOU We recommend it.

S/C Gemini 9.....(garbled)

HOU Houston could not copy.

S/C Houston, this is Gemini 9. The optical first sight ....is 12 degrees...the radar first sight.

HOU Roger, understand.

S/C Houston, Gemini 9.....reads 22 degrees, 32 miles.

HOU Houston. You're a little bit garbled, Gene.

S/C ....garble....

HOU Houston LOS.

That was taped communication between the Houston Control Center remoting through Ascension and Gemini 9. At this time Gemini 9 and the Target are approaching the African continent, with the range at this time on the order of 20 miles. This is Gemini Control, 3:37 into the flight.

This is Gemini Control Houston. Gemini 9 and the target are now passing over the southern tip of Africa. Gemini 9 is on its third revolution. At this time the range between Gemini 9 and its target is approximately 20 miles. This is Gemini Control, 3 hours, 41 minutes into the mission.

END OF TAPE.

GEMINI 9A MISSION COMMENTARY, 6/3/66, 11:24 AM TAPE 43 PAGE 1

This is Gemini Control. Three hours 44 minutes into the mission. According to our plotted data here, Gemini 9 should be within 17 miles range at this time of the target and we will switch now to pick up the voice communication remoted through the Tananarive station with the Gemini 9 crew.

AFD Carnarvon AFD

CRO Go ahead, AFD.

AFD Turn off that beacon and acquisition.

CRO Roger, will do.

AFD Roger.

This is Gemini Control. We are standing by here for voice communication with the Gemini 9 crew.

This is Gemini Control. Gemini 9 and the target vehicle are passing over the Ascension Island tracking stations at this moment. We are standing by to pick up any voice communications that may occur. Correction. The Tananarive tracking station located off the east coast of South Africa.

S/C Tananarive 54.3 range 9.35 range rate 89 feet per per second.

HOU Roger, we are less than a minute from LOS.

TAN Tananarive has LOS.

That was live voice communication remote through the Tananarive station and Gemini 9 and the last word - probably just about the only word we heard from our crew is that the range at that time was 9.35 miles. This is Gemini Control at three hours 50 minutes 51 minutes into the flight.

END OF TAPE

This is Gemini Control, three hours and about 60 minutes into this mission. We have Gemini 9 passing now into the range of the Carnarvon tracking station and the ATDA or target is three and a half miles in range and we will switch now to pick up voice communication between Carnarvon and Gemini 9.

S/C Have C-Band track.

CRO Roger.

S/C We are at 88.2 degrees and three miles.

CRO Roger.

Did you copy Flight?

HOU Affirmative.

CRO Range rate is 50.

HOU Roger.

S/C Carnarvon, we just applied the second closed loop, so this is up three forward and two down.

CRO Did you copy, Flight?

HOU Affirmative. Get the ATDA beacon off?

CRO That is affirmative.

HOU Okay.

CRO I have got pretty noisy data on the Gemini right now.

HOU Okay.

Are you getting good spacecraft C-Band track?

CRO That is affirmative.

HOU Okay.

S/C Carnarvon, Gemini 9, we have the red running lights at this time, two and a half miles.

CRO Roger.

S/C Carnarvon, Gemini 9. It looks like we are going to be braking directly into the moon. It should be an interesting problem.

CRO Roger.

S/C Gemini 9. Elevation 94.9, range 2.37 miles, 39 feet per second.

CRO Did you copy, Flight?

HOU Affirmative.

Carnarvon, can we have some summaries from you?

CRO Roger, Flight. We are having a problem in the data solenoid and we cannot get our computer locked up.

HOU Okay, Carnarvon, Roger.

CRO ...we will get your summary.

HOU Roger.

S/C Carnarvon, Gemini 9. Elevation 99.0 degrees, two miles 37 feet per second.

CRO Did you copy, Flight?

HOU Affirmative.

CRO Carnarvon has C-Band LOS.

HOU Roger.

S/C Gemini 9. Elevation 102.7 1.67 miles and 34 feet per second and we can actually determine it is

SC tumbling because of the ac lights and the running lights variations.

CRO Roger.

S/C Gemini 9 is 106.8 degrees, 1.32 miles and 34 feet per second.

CRO Gemini 9, Carnarvon, we are 30 seconds to LOS.

S/C Roger, and we (garbled)
This is Gemini 9 on one mile and we can determine the distance between the running lights.

CRO Roger.

S/C Houston, Gemini 9 110.1 degrees, one mile 23 feet per second and we are braking off to 20 feet per second at this time.

That was voice communications between Gemini 9 and Bill Garvan, our spacecraft communicator at Carnarvon. The last range that we received from the crew was one mile in range. This is Gemini Control four hours seven minutes and 52 seconds into the mission.

END OF TAPE

This is Gemini Control, we are 4 hours, 11 minutes into the mission. Gemini 9 and the target are moving over the island of New Guinea at this time. The last word we heard from Gemini 9, Gene Cernan reporting the range to the target as 1 mile. We had no word from the crew on the condition of the shroud. We will have no further voice communication with the crew until Gemini 9 passes over the Hawaiian Tracking Station, which should take place approximately 20 to 25 minutes from now. This is Gemini Control, 4 hours and 11 minutes into the flight.

END OF TAPE.

This is Gemini Control at four hours and 20 minutes into the mission. Gemini 9 and the target are now moving over the Pacific Ocean and our next acquisition will be over Hawaii in approximately four minutes. Meantime, our Flight Director Gene Kranz has instructed Gary Scott, the spacecraft communicator at Hawaii to ask the crew of the status of the shroud and to determine the rates on the ATDA. And also, to determine whether they can dock should the shroud be removed. This is Gemini Control, four hours and 20 minutes into the mission. We are standing by for our Hawaii pass.

END OF TAPE

This is Gemini Control in Houston at four hours and 26 minutes into the flight. We have established contact with Gemini 9 over the Hawaiian tracking station. Tom Stafford reports we have a weard looking machine, the clam shells are on -- the shroud clam shells are on but they are open wide and evidentally the bolts are blown and we will pick up now that voice communication between Hawaii and Gemini 9.

S/C Hello Houston, Gemini 9.

HAW Gemini 9, Hawaii.

S/C Hawaii, we've got a wierd looking machine here.

HAW What does it look like?

S/C Okay, both the clam shells of the nose cone are still on but they are open wide. The front release has let go and the back explosive bolts attached to the ATDA have both fired. It appears that one of the bolts of the band has fired.The ones that do fit together is the quick disconnector, a small electrical connector that fires the bolts on the band.

HAW Roger, understand.

S/C The jaws are like an alligator jaw thats open at about 25 to 30 degrees and both the piston springs looks like are fully extended.

HAW Roger.

S/C Also the back parts of the nose cone have separated from the ATDA. It looks like its just held on by some inconceivable force. But everything looks good.

HAW Roger, we understand.

HAW What types of rates have you got? How bad is your tumbling?

S/C Okay, its about three or four degrees per second.

HAW Flight, Hawaii

HOU FLIGHT Stand by Hawaii

HAW Rog.

HOU FLIGHT Hawaii Cap Com, Houston Flight.

HAW Go ahead, flight.

HOU FLIGHT Will you ask the crew if they think cycling the target docking adapter.....

S/C .....we have 58% fuel remaining and we're supposed to keep it between 10 and 30 feet.....

HAW Roger copy.

HOU FLIGHT Try back again. Ask the crew if they think cycling the target docking adapter from un-rigidized to rigidized might break it loose.

HAW Roger, copy flight.

Roger, say again Gemini 9.

S/C Roger, it appears that the basic rate is in roll. right now The body access/is merely horizontal.....

The big rates are in roll.

HAW Roger understand.

Do you think there's any possibility of breaking the cone and shaking it loose by.....

HOU FLIGHT Roger, why don't you have the crew stand by there

HOU FLIGHT and why don't you try cycling the target docking adapter cone back to the rigidized and then back to the unrigidized and in between each cycle, after recycling back to rigidized have the crew watch it and see if it seems to be doing any good.

HAW Roger.

HOU FLIGHT And advise them when you're sending the commands.

HAW Roger. Gemini 9, Hawaii.

S/C Hawaii, Gemini 9, I can also see the back two springs -- the .....(garbled).....30-pound springs, way up in under about 5 or 10 feet -- I'm trying to get into position here. The back bolt has definitely fired, I can see the spring has got the two cells apart about two inches./ The two halves or the two inches you can see..... (garbled)..... .....

END OF TAPE.

S/C Rog. It"s got smudge marks on it. We're now about three feet from it and the electrical connectors that should disconnect did not disconnect on either one of them.

Capcom They did not disconnect? Is that right?

S/C The band that's holding the whole mess together -- Stand by one till I give youthe distance on this other one -- I'm trying to find the cable disconnect. I can't see the disconnect; of course it would be blocked. Okay the other one is....the spring is gone from the back of the other aft one and no part is still there. Its separated - the back is completely separated three to four inches and I'll give you another good check. The only thing that is holding the whole mess on there is the bands. Rapid firing would fire those disconnects on one.

HAW Roger understand.
We've got about three minutes here until our LOS. We'd like to go through one rigidized and unrigidized sequence and then you watch it if you'd get into the station where you could watch it from.

S/C Standby one. I don't want to be to close to it we're fixing to cut loose.

HAW Roger, understand.

S/C Okay, now on the other side, both explosive bolts on the band have fired. The band is held intact by all four of those electrical pryos that fire the bolts.

S/C It doesn't look like somebody hooked up a disconnect.....

HAW Roger understand.

S/C Disconnect did not disconnect thats the only thing thats holding the whole mass intact.

HAW Roger.

S/C Don't want a rigidize yet can we hack it over the states?

HAW Roger, I was just going to suggest it. I'm getting to close to LCS.

S/C Yea and I'm to close to the nose cone too.

HAW Roger.

HOU Okay Gary you can advise - well standby we'll pick.....

S/C Relay that word on to Houston, all four explosive bolts have fired, it is basically free from the ATDA. Its just barely held on by those four little pyro wires in them.

HAW Roger.

S/C Pyro wires on the strap is disconnected.

HAW Roger understand.

S/C We have 58 percent OAMS fuel remaining.

HAW Roger.

S/C It looks like an angry alligator out here rotating around.

HAW I can imagine.

HOU Hawaii Cap Com, Houston Flight.

HAW Go Flight.

HOU Right. Ask the crew if they could be set up for the....

S/C I have another word to Houston, we can station keep here quite awhile and also we have a suggestion we might put

S/C out our docking bar and go up and tap it.

HAW Roger. Standby.

S/C Roger.

HAW Say again Flight.

HOU I've got a counter proposal. Ask them - tell them we're going to continue working on their description and we'll cycle the adapter and we'll pick them up over the states here.

HAW Okay, very good.

HAW Gemini 9, Hawaii.

S/C Go ahead Hawaii.

HAW Houston wants to wait and take a look at it and try cycling your adapter over the states.

S/C We'll get back in a set position and again pass on to them all four explosive bolts have fired. It is basically free of the docker and are resting on it. We can see its activator and those four little pyro wires which is definitely holding the whole thing.

HAW Okay we're having LOS.

S/C The springs have just about distributed full force.

HAW We've had LOS Flight.

That was voice ommunication between the Hawaiian tracking station and Gemini 9 and you heard Tom Stafford give a very vivid description of the status of the shroud that is still hanging to our target vehicle. Our next communication of course will come when we get over the state side pass, in a few minutes and we will attempt to bring further information at that time. Hopefully, a plan whereby we can release the shroud. This is Gemini Control at 4 hours, 34 minutes into the flight.

END OF TAPE.

....establish voice communication with Gemini 9 from Houston and we will pick that communication now.

CAP COM — You see anything about those?

S/C — The (garbled) is too much, Neil, I can't see it.

CAP COM — Roger, I understand.

S/C — The clamp shells at the back are between four and five inches apart. Coils springs, one of the is beginning to part, the other is still attached. The basic nose cone has detached around the ATDA ring and the only thing holding it together are those yellow wires that go...went to the initiation of the explosive bolts of the straps.

CAP COM — I understand. Can you...you cannot tell whether the disconnects have pulled, is that correct? Wire bundle disconnects?

S/C — That's affirmative. What's holding it together are the four small plugs that should have put disconnects either on the pyros or the straps. The whole thing is just loosely hanging on there, we're standing by for an unrigidized sequencing, if we would get it right now it would be great.

CAP COM — Roger, we'll have to wait until we get over Texas.

S/C — Okay.

CAP COM — Wait a minute, it will be about six minutes from now when we are over, when we get in Canaveral, uh, acquisition.

S/C — Okay. We are standing by to get movies filmed at when you unrigidize.

CAP COM Ok, I've got maneuver message for you for radio Sep when you are ready to copy.

S/C Roger for radio Sep. You want us to stand by here and talk this thing over for a minute and see if we can't possibly...I'd like to look at the idea of possibly extending the docking bar and going up to touching it, the whole thing may fall apart.

CAP COM Ok, we've got about 23 minutes left. The radio Sep, I'd like to give you that first.

S/C Ok. Go ahead, Neil.

CAP COM Ok. GETB is 50100. Delta V 20.0, burn time 35 seconds. Pitch is 90 down, address 250, address 26 90200. 27 zip, forward thrusters up maneuver.

S/C This is Gemini 9. Say Delta V, and address 25,6 and 7 again please.

CAP COM Roger. 25 is all zip's, 26 90200, and 27 zips's, that Delta V is 20 feet per second.

S/C Roger, we got it. GET is 050100, Delta V 20, 35 second burn time, 25 all zero, 26 90200, 27 is zero, and four thrusters up.

CAP COM Roger. It sounds to us like perhaps the cables haven't pulled the disconnects to the wire bundles in which case we would definitely have to wait until... with the contingency plan B there, wait until later to look at that. We will go ahead and exercise that TDA as soon as we get acquisition at the Cape. Your platform alignment prior to this Sep will be

about five minutes from now, so you've got that much time to do what you like.

S/C — OK Neil, from here it looks like its very possible that the wire bundles, that these wire bundles could have separated. It's sure hard to see, but again, is everybody squared away on what is holding the thing together?

CAP COM — Well, I think everybody down here is pretty well convinced by your description of the situation.

S/C — Yeah, ok. I can't really tell what....we have two big umbilicles that goes to the ATDA, I can't tell whether those are still attached or not but it is the four little wires that go to each of the explosive bolts on the straps that's supposed to have a disconnect on it and those are all intact and all four explosive bolts were fired. So it's just the four disconnect umbilicals on the strap that have not pulled. All four of them are still intact and all four should have pulled.

CAPCOM — Roger. We're with you, Tom.

S/C — Houston. Gemini 9.

Capcom — Houston, go ahead.

S/C — Roger. On the rendezvous, we initiated with 27 forward, one up, which was not quite closed loop, the computer, then however did function properly to give us our proper correction and appears that

it is working alright and in all modes at the present time.

CAP COM — Nine, Houston copied. Can you send the L-Band command, Gene?

CAP COM] — Gemini 9, Houston.

S/C — Go ahead, Houston.

CAP COM — Did you send that L-band command?

S/C — We did send an L-band command and the acq lights are off.

CAP COM — Roger, understand. And could you tell us the status of your start comp light when you are in catch up now?

S/C — Start comp light is working fine, everything appears to be normal. It was just a little anxious to rendezvous I guess. After we once accepted its solution, things went real well.

CAP COM — Ok.

S/C — We still have about 57% fuel.

CAP COM — Roger.

S/C — We'll stay here and get in a good position.

CAP COM — OK, then how long will it take for you to get in position for platform align as soon as this is over?

S/C — Oh, not too long.

CAP COM — Ok, we're going to be running out of alignment time here. Your pitch will probably be in in about five minutes or so so we'll have probably a little shorter alignment time, but it'll be ok.

S/C Ok, I'm getting in position now.

CAP COM Rog.

S/C Neil, have you got reading on my suggestion setting the docking bar and giving it a tap?

CAP COM Well we are pretty convinced due to the telemetry signals from the cables that they are still plugged in.

S/C Ok. It looks like it is barely - the cables may still be there, but once that strap goes, the whole thing should deploy.

CAP COM Right. Are you ready to watch for - we are ready to send those commands now.

S/C Okay, stand by.

CAP COM Let us know as soon as you are ready.

S/C Okay, we are right behind it. Send the command.

CAP COM Roger. Okay. Rigidizing now.

S/C It is moving. It is moving all around. Derigidize the clam shell, the alligator jaw came close lately.

CAP COM Roger.
Acquisition Grand Turk
Okay, unrigidize.

S/C (Garbled) about 15 degrees on it.

HOU Okay, that is pretty good signal then. We will plan on going ahead with the separation burn at this point.

S/C I am in position to ...

HOU Okay, you have about 14 minutes left until separation burn. So guide your platform align in position in accordance.

S/C Roger.

LOS Antigua.

HOU Gemini 9, Houston. We are going to be evaluating the chart situation during the equal period rendezvous. How does it look as far as being able to make that separation time?

S/C We are working .. (garbled)

HOU Okay, let us know.

S/C Houston, Gemini 9. We have finished aligning the platform and moving around in position.

This is Gemini Control four hours 51 minutes into the mission. You have heard the description from Tom Stafford of the status of the target vehicle. At this time the spacecraft and the target are passing over the Antigua tracking station area. The northern part of South America. They are beginning the fourth revolution for the spacecraft. Tom Stafford has aligned his patform and is moving into position for the equal period re-rendezvous which will deburn for which will start at five zero one elapsed time. Five hours zero one, elapsed time. The burn will be a Delta V of 20 feet per second, Delta time of 35 seconds. He will pitch down 90 degrees

with the blunt end up and fire his forward thrusters. This will put in approximately two and one half miles above the target and they will reach a maximum separation from the target of approximately 11 miles. They will be behind the target approximately 11 miles and will come up again and rerendezvous with the target. During this - after the burn is completed, there will be necessary, a slight mid-course correction, which will be figured out by the crew aboard Gemini 9. This is Gemini Control at four hours 53 minutes into the mission.

END OF TAPE

This is Gemini Control at four hours and 58 minutes into the mission. Gemini 9 is beginning its fourth revolution. Our target on its 34th revolution. Both vehicles are passing over the northern part of South America at this time. We have a report that the pressure and temperature readings obtained from the AMU, astronaut maneuvering unit, during the boost phase and while it is in orbit indicate that conditions of the hydrogen proxide duel very closely approximate those that pertained on the pad prior to launch. Current readings are pressure 90 pounds psi at temperature 77 degrees. Captain John Donohue, Air Force Project Officer for the AMU experiment, remarked that the unit appears to be in excellent condition. This is Gemini Control at four hours 59 minutes into the flight.

END OF TAPE

This is Gemini Control at five hours and three minutes into our mission. The spacecraft Gemini 9 and out target vehicle are passing over the Rose Knot tracking ship. Within range of that tracking ship Stafford reported he has fuel remaining of 50% and he has completed his equi-period re-rendezvous burn which will place him two and one half miles above the target and the maximum separation between the two vehicles will be 11 miles, the spacecraft being behind. During the contact we had, the visual contact, between Gemini 9 and the target the ring A fuel system aboard the target, the thruster system, was not activated and, therefore, ring A is still available should we arrive at a solution for this shroud which is still hanging on to the target vehicle. While this equi-period re-rendezvous is being made or, as it is being made, the flight controllers here will be evaluating the shroud situation and we hope to come up with some answers. This is Gemini Control, five hours, five minutes into the mission.

END OF TAPE

This is Gemini Control at five hours and 10 minutes into the mission. Gemini 9 and the target vehicle are moving out over the South Atlantic ocean. They have not passed out of voice range of the Rose Knot, our tracking ship located off the east coast of South America. And at this time, we will play back the voice communications taped between Rose Knot and Gemini 9.

RKV Gemini 9. RKV Cap Com. We are standing by for your maneuver in approximately one minutes.

S/C Roger, we are in position.

RKV Roger.

S/C RKV, Gemini 9. Stand by for a mark at ... for a burn.

RKV Roger.

S/C Mark the burn.

RKV Roger. TM read out. We get an indication down here (garbled) TM. End of burn.

RKV Gemini 9, RKV.

S/C Stand by.

HOU RKV, Cap Com Flight.

RKV Go Flight.

HOU Roger. We would like you to send sequence 5 ac lights on to the ATDA please?

RKV Roger.

S/C RKV, make sure we don't have flashing lights on, L-Band on.

RKV Say again.

RKV Gemini 9 RKV. Say again, please.

S/C Make sure the ac lights are commanded on.

RKV Roger, we have just turned them on.

S/C RKV, Gemini 9. Our residuals are zero.

RKV Roger, that is good.

S/c And (garbled)

RKV Roger. And could you give us an evaluation of the range at which you could see the ac lights when you were making initial rendezvous. And also how attractive you thought the ac lights were?

S/C Roger, we saw them for the first time at right after darkness about (garbled) and then we lost it in the second sun light about 30 miles. (garbled) First viewed them in the darkness and then would loose them again.

RKV Okay.

S/C And we saw the reflection of the bird line about five or six miles and then we saw the red running lights that - a good four to five miles.

RKV Roger.

RKV Everything looks good out here.

S/C Roger, RKV.

RKV Report on ac lights and effectiveness?

HOU That is affirmative.

12:50 PM

RKV Roger, we recorded the information (garbled)

HOU Okay, have you got anything in your ATDA RF power monitor indicating anything there?

RKV That is affirm

HOU Okay.

RKV Roger, we are reading about 4.2 volts on the meter here.

HOU Roger. Get the ac lights on?

RKV That is affirm, Flight.

HOU Okay.

S/C RKV, Gemini 9, we have the ac lights on (garbled)

RKV Okay, thank you.

S/C The distance is about one mile.

RKV Roger.

Gemini 9, RKV. We have LOS in about five minutes.

S/C Roger, RKV.

RKV RKV has LOS.

END OF TAPE

This is Gemini Control at 5 hours and 20 minutes into the mission. Gemini 9 at this time is passing over the southern point of Africa and very shortly will be over the Tananarive Tracking Station area. We have just established voice communication with Tananarive. At this time Gemini 9 is in its maneuver, the equal period rendezvous maneuver. Tom Stafford and Gene Cernan are busy completing that maneuver. We will bring you information on that as soon as it is received here. This is Gemini Control at 5 hours, 21 minutes into the mission.

END OF TAPE.

This is Gemini Control at five hours and 30 minutes into our mission. Gemini 9 is passing over the Indian Ocean and it is in an equi-period rendezvous attempt. At this time the separation between the spacecraft and the target vehicle should be in the order of approximately five miles with the spacecraft below and behind, trailing the target. We now have a voiced tape which we will play back which was made just a few minutes ago between the tracking station at Tananarive Remote and Gemini Control and Spacecraft 9.

Tananarive go remote.

TAN — Has acquisition.

S/C — Houston, Gemini 9.

HOU — Gemini 9, Houston. Standingby over Tananarive.

S/C — Roger, Houston. Gemini 9. We're now about five miles down range from the target and ..... able to distinguish on the ground down below.

HOU — Roger, understand. Gene, the Com techs say they were waving and smiling for your pass over.

S/C — Okay, that's very good.

HOU — Gemini 9, Houston. It's about one minute from LOS

S/C — Roger, Gemini 9. Our trajectory looks real nominal on the data plot.

HOU — Very good.

TAN — Tananarive has LOS.

END OF TAPE

This is Gemini Control at five hours, 41 minutes into the mission. Gemini 9 is now passing over Indonesia on its fourth revolution. The spacecraft at this time is above the target and at a range of about eight miles, approximately. We have had no voice communication with the spacecraft since it passed over the Tananarive tracking station. Our next voice communication with Gemini 9 may occur over the Coastal Sentry tracking ship and the one after that would be the Hawaiian tracking station. This is Gemini Control. Our spacecraft is in its equi-period re-rendezvous and the range is about 8 miles, approximately, from the target. Gemini Control at five hours, 42 minutes into the mission.

END OF TAPE

This is Gemini Control at five hours, 50 minutes into the mission. Our flight crew is still in the midst of their equi-period re-rendezvous. The burn looks so good according to Tom Stafford, it looks like there will be no mid-course correction needed. At this time, Gemini 9 is passing over the Coastal Sentry tracking ship and we will bring back for you now - we will play back the voice tape of communication between Coastal Sentry and the flight crew.

CSQ — CSQ Cap Com, AFD. CSQ Cap Com, AFD.

HOU — CSQ we're standing by for your pass.

CSQ — Okay. We show both vehicles are go. Gemini 9, CSQ Cap Com.

S/C — CSQ, Gemini 9.

CSQ — Roger, Gemini 9. Would you start your fuel cell purge at your convenience and advise the next ground station of your results and it does not have to occur over a ground station. Do you copy?

S/C — Roger, CSQ on the fuel cell purge. We have just begun to perform horizontal adjust maneuver.

CSQ — Roger, understand and we're standing by.

S/C — CSQ, Gemini 9.

CSQ — Gemini 9, CSQ Cap Com, over.

S/C — Roger, we have passed our horizontal adjust maneuver. We are exactly nominal and our corrections are zero.

CSQ — Roger.

HOU — Roger.

CSQ — Do you copy, Flight?

HOU Say again.

CSQ I say, do you copy, Flight?

HOU Affirmative. CSQ Cap Com, Houston Flight. Can you tell us some summaries, please?

CSQ Say again, Flight.

HOU Send us a main summary, please. We haven't received any yet.

CSQ On the Gemini or ATDA?

HOU That's Gemini, Bill. CSQ, AFD. Have you sent any of your summary data?

CSQ Say again, Flight.

HOU Roger. Have you sent your summaries messages, both on the Gemini and the ATDA?

CSQ That's affirmative.

HOU Okay. I don't read you. I want you to retransmit them.

CSQ I will transmit them again.

HOU Okay.

CSQ CSQ has LOS, Gemini and ATDA.

HOU Roger.

END OF TAPE

This is Gemini Control at six hours and 30 seconds into our mission. The flight crew is still performing the equal period re-rendezvous. Gemini 9 is now passing within range of the Hawaiian Tracking Station. At this time the spacecraft should be passing behind and below the target vehicle. The range should be in the order of 11 nautical miles, which is the maximum separation range during this maneuver. This is Gemini Control at six hours and one minute into the flight.

END OF TAPE

This is Gemini Control at six hours and ten minutes into our mission. Gemini 9 and the target vehicle are now passing over the Pacific. They have just passed beyond range of the Hawaiian Tracking Station. Our crew is still performing the equal period re-rendezvous maneuver. Hawaii reported all systems look good from the ground aboard the Gemini 9. At this time Gemini 9 is below the target and at a range of approximately eight nautical miles. Tom Stafford should begin his terminal phase initiation in about ten minutes. At this time we will play back the voice tape taken between Hawaii and the Gemini 9 crew.

S/C	Hello Hawaii, Gemini 9.
HAW	Gemini 9, Hawaii.
S/C	We're still aligning our platform. We are standing by to roll inverted in approximately 15 minutes.
HAW	Roger, we'll be getting a tape dump on this pass.
S/C	Say again.
HAW	We'll be getting a tape dump on this pass.
S/C	Rog. What about the ATDA?
HAW	We haven't got any more words on it.
S/C	Okay. I still suggest that we try to give it a one sided bumper with our docking barge to see if we can't break it loose.
HAW	We heard that.
HOU	Houston has your input.
HAW	Okay. We have solid TM on both burns and all systems look good and we're copying the tape dumps.
HOU	Roger, Hawaii.

HAW	We've completed the tape dump.
HOU FLIGHT	Hawaii, Cap Com, Houston Flight, if the crew has got time, we'd like an onboard on the spot quantity.
HAW	Roger. Gemini 9, Hawaii, if you can, I'd like an onboard OAMS spot quantity, please.
S/C	Roger, now reading 49%.
HAW	Roger.
HOU FLIGHT	How's it looking out there Hawaii?
HAW	Looks real good flight. Flight, we're getting a little higher rate on the ATDA, but not too bad.
HOU FLIGHT	Okay.
HAW	We got a good tape dump.
HOU FLIGHT	Roger, Hawaii.
HAW	Gemini 9, Hawaii. We have 30 seconds to LOS. Hawaii has LOS on both vehicles.

That was tape voice communications between Hawaii and Gemini 9 flight crew. The spacecraft is now coming toward the states. And we expect our state side pass shortly. We expect to establish communicatins shortly. At this time the spacecraft is below target vehicle and should be within a range of approximately six miles. We will stand by now to bring you the voice communication from the state side pass.

HOU Guaymas remote, California local.

GYM Guaymas remote.

This is Gemini Control. We are standing by to pick up voice communications between Gemini 9 and the ground as the spacecraft makes it pass over the states.

HOU Texas remote, Guaymas local.

HOU Texas remote.

HOU CAP COM Gemini 9, if you have time confirm that you've sent the L-band command.

S/C Have we sent the L-band command down?

HOU CAP COM Roger. Confirm.

S/C Roger, we have a solid lock on here. There's been a reflected sunlight ever since we turned over upside starting that, we just completed PPI.

HOU CAP COM Roger, we're with you.

S/C Roger, and everything is looking good.

HOU CAP COM Good.

This is Gemini Control, we are standing by for any voice communcations with Gemini 9 as it passes within range of the state side tracking station. Just a few seconds ago, we heard that Tom Stafford had completed his terminal phase initiation.

HOU CAP COM Gemini 9, Houston, I understand that you have turned the ACQ lights off is that correct?

S/C Negative, we have not turned off the ACQ lights.

HOU CAP COM Okay, we're running pretty close on power on this thing so I'd like to have you turn them off when you can.

S/C	Rog, we'll turn them off right now Neil.
HOU CAP COM	Okay.
S/C	They're off flight.
HOU	Okay.
S/C	Houston, Gemini 9, our pitch angle is now about 54 degrees.
HOU CAP COM	Houston roger.

This is Gemini Control, we are six hours and 22 minutes into the mission. Our Gemini 9 crew has passed out of the range of our state side tracking stations. The flight crew is still in the re-rendezvous -- the equal period re-rendezvous -- and they should be very close to the target vehicle at this time so close that we cannot estimate their distance on our little chart that we have to work with. The spacecraft was coming up from below and within a very few minutes, Command Pilot Tom Stafford will start his terminal phase final approach. This is Gemini Control at six hours and 22 minutes into the mission.

END OF TAPE

This is Gemini Control at six hours, 40 minutes into the flight. Gemini 9 has concluded its equi-period rendezvous and is now station keeping. They have just performed a fuel cell purge. Command Pilot Tom Stafford reports he completed this rendezvous with 42% of his fuel remaining which is within the limits. At seven hours, 14 minutes, 58 seconds elapsed time, the crew will do its separation maneuver for the third rendezvous. This will be a six second burn or a Delta V of 3.7 feet per second. A retrograde maneuver which will put the spacecraft below the target vehicle, therefore, in a faster orbit, and through the night cycle it will get ahead of the target vehicle. We have now a tape of the pass over the Range Knot - the Rose Knot Victor. We'll play that for you now.

S/C Channel 5 and channel 13 have been reset on the ATDA.

RKV Say again channel 5 and channel 13 have been reset?

S/C That's affirmative.

RKV Okay. Gemini 9, RKV Cap Com, standing by until you stabilize and start station keeping.

S/C TM on the Gemini is real spotty and broken.

HOU Okay.

S/C This is Gemini 9.....How do you read?

RKV Gemini 9, this is RKV. Reading you loud and clear.

S/C Okay. We have completed the .... rendezvous and station keeping about 100 feet from the ATDA and closing in.

RKV Roger.

S/C I have 42% fuel remaining.

RKV Roger, understand. 42%. Roger, I have confirmation for you on your - ready to copy?

S/C We're putting in a fuel cell purge here.

RKV Do you want them to hold that fuel cell purge off, Flight?

S/C We've already started.

HOU Okay, let's go ahead.

S/C Ready now. Go ahead with your update, RKV

RKV Oh, roger. First, I have some information for you. The people at the Cape and Houston do not believe we can get the shroud separated.

S/C Okay.

RKV And so they want to advise you to use minimum OAMS during your station keeping period. If you have on-board reading of 40% we'll have an update for the rest of the flight plan.

S/C Roger, we have it.

RKV Okay, if you're ready to copy I have your sep maneuver.

S/C Stand by here.Okay, go ahead with your message now.

RKV Roger. This is your sep maneuver. GETB 071458. Delta V, 3.7. Burn time 66. Yaw, zero. Pitch, zero. Address 25, 90037. Address 26, all zips. Address 27, all zips. Thrusters forward. Maneuver retrograde. Over.

S/C Roger, understand. Stand by one. This is Gemini 9. I am in the process of inserting O_2 on section 2 at

this time and the sep maneuver is GETB 071458. Delta V, 3.7. Delta T, six seconds. Yaw, zero. Pitch, zero. Core 25 is 90037. 26 and 27 are all zeros. Forward thrusters, retrograde.

RKV That's affirm, roger.

HOU RKV, Flight.

RKV Go ahead, Flight.

HOU You might remind him to start that maneuver when he's behind the ATDA.

RKV Say again.

HOU Remind him to start that maneuver when he's behind the ATDA. (said simultaneously with below)

S/C ..the running lights on.....(garbled)

RKV Roger, I wanted to advise you to start that maneuver behind the ATDA.

S/C Roger, we are in a BEF attitude, now. We will wind up BEF.

RKV Roger. Copy, Flight?

HOU RKV, Flight.

RKV Go ahead, Flight.

HOU We're concerned about the temperature on the L-Band radar in the spacecraft. We'd like to turn it off until we do the separation maneuver and then bring it up in track again and make sure we separated and turn it off again.

RKV Roger. That's in the spacecraft?

HOU Say again.

RKV In the spacecraft.

HOU That's correct. Spacecraft L-Band radar.

RKV L-Band radar off?

HOU Goahead, RKV.

RKV Okay, do you want to go to stand by or off?

HOU Stand by a minute for the answer.

RKV Roger.

HOU RKV, tell him to send it off in the blind.

RKV Roger. Gemini 9, RKV. I'd like you to turn your L-Band radar off and turn it on prior to the sep maneuver.

S/C We.....It's getting a little bit warm.

RKV We have about 30 seconds to LOS. We'll be standing by.

S/C Roger. We'll aline that platform B after the retrograde maneuver.

RKV Roger.

HOU RKV, would you give us a Gemini LOS Bravo?

RKV Roger.

HOU And also a Gemini main.

RKV Roger. Flight, we've had LOS on them.

HOU Okay. Will you get it up to them about the 40% cutoff?

RKV That's affirmative.

END OF TAPE

This is Gemini Control at seven hours into the flight. Gemini 9 is now in range of the Tananarive station. We are about 15 minutes away from the separation maneuver for the third rerendezvous. This will take place about three to four minutes before acquisition by the Coastal Sentry Quebec tracking ship and after this maneuver we will power down the ATDA and the spacecraft. We will play back for you now, the pass over the Tananarive station.

HOU Tananarive go remote.

TAN Tananarive remote UHF.

Tananarive has acquisition.

HOU Gemini 9, Houston standing by for your fuel cell purge report.

Gemini 9, Houston. Gemini 9, Houston.

S/C This is Gemini 9.

HOU Roger, How did the purge go?

S/C Say again.

HOU How did your fuel cell purge go?

S/C Real good.

HOU O ay, listen, what is the maximum range you think you were able to see the ac lights at night?

S/C Roger. Right after DCO we saw the ac lights.

HOU Roger, right after TPI.

S/C (garbled)

HOU Understand it faded out. What do you think the maximum range was?

S/C ... mile

HOU Somthing like 25 miles, right?

S/C We would estimate that we saw them about 40 something miles.

HOU Roger, understand.

How is that alligator?

This is Gemini Control seven hours two minutes. Gemini 9 is still within range of the Tananarive station. We are standing by for further conversation.

TAN Tananarive has LOS.

END OF TAPE

This is Gemini Control, 7 hours and 10 minutes into the mission. Gemini 9 is over the Indian Ocean out of range of any tracking station. We are about 4 minutes away from the terminal maneuver,- from the separation maneuver at the present time. The communications with the Coastal Sentry Quebec are rather poor right now but we hope they are in better shape when we do have acquisition of the spacecraft at that time, and are able to get a rundown on this maneuver. This is Gemini Control.

END OF TAPE.

HOU CSQ, Houston Flight, do you read?

CSQ Houston Flight, CSQ.

HOU I can barely read you. You are pretty weak. Do you read me all right?

CSQ You are weak, but readable. Have you - what have you got there?

HOU Yes, we have an MI coming to you. We have an MI coming to you. Let me review that briefly with you. One, we would like to know how the SEP maneuver went. Two, we would like to get cryo and TQI readouts. Three, we would like to suggest that the crew use the radar to monitor the separation ... ATDA and then turn it off when they are satisfied. We would propose to turn it on one rev later to again check the separation. Fourth, proceed with powering down. Fifth we have something special in the power down sequence. We would like to stay in pre-launch at least 18 seconds to see if the computer ring light comes on. After that time, go ahead and turn it off, whether it came on or not. Were you able to copy?

CSQ I did not copy too much. I got (garbled)...

HOU Say again, after the cryo and TQI readouts.

CSQ (Cant' hear)

HOU Go ahead with your checklist.

CSQ I have ....

HOU CSQ, Houston Flight, we have a message, a quick message on the way to you, with the instructions to dispatch.

CSQ Roger, understand.

HOU I can read you now.

CSQ I can read you a little bit better.

HOU CSQ Cap Com, AFD.

CSQ CSQ Cap Com.

HOU Roger, did you receive your MI?

CSQ .....Gemini

HOU Roger, have you received your MI?

CSQ (Garbled)

HOU I just copied you then, but I cannot copy what you are doing?

CSQ ....

HOU CSQ, Flight, did you check the power and control circuit breaker for the tape recorder?

CSQ That is affirmative, Flight.

HOU And it is still on?

CSQ ... circuit breaker (garbled)

S/C (Garbled)

CSQ (Garbled) we would like you to place your ring on ....and if you are satisfied, turn your radar off until the next rev... power down...

HOU Go ahead Cap Com

CSQ Roger, we still ... circuit breakers...

HOU I understand you to say the tape recorder still indicates off, both circuit breakers have been verified closed.

CSQ That is affirmative. (Garbled)

HOU Roger, switchings and diapoles spiral every six seconds.

CSQ That is affirmative.

HOU Did you get the flight plan update to the crew?

CSQ No, did you want that read up to them?

HOU Affirmative.

CSQ Gemini 9, CSQ Cap Com.

S/C Roger, go ahead.

CSQ I have a flight plan update for you.

S/C Roger, stand by. Go ahead.

CSQ Roger, Hawaii ..073700, crew status report...from 080000 to 090000. At CSQ clime 085400, ELA update fuel cell purge and cryo quantity readout. Sleep period from 090000 to 170000. Did you copy?

S/C Roger. We have this as reported Hawaii 073700, 080000 090000 CSQ will pick up at 085400 fuel update purge, ... 170000.

CSQ Affirmative. We have nothing further for you Gemini 9.

S/C Roger...

CSQ And we are showing you go as you go by.

S/C Roger.

HOU CSQ, Houston Flight.

CSQ Go ahead Flight, CSQ.

HOU I would like you to ... and send it in to us. So while we have some time, let me see if I got it all. He completed the retro burn and he felt all right about it

CSQ That is affirmative.

HOU He was doing a cryo readout and I could not read it, I assume you sent all those numbers to us.

CSQ We will sent them in post...

HOU Roger, what the OAMS prop read.

CSQ 40 percent.

HOU Houston copy.

CSQ Say again Flight?

HOU Disregard.

CSQ He was satisfied with both items four and items five on the MI.

HOU Let me see what they are. Did he start to power down?

CSQ Affirmative.

HOU Did he track at all with the radar to satisfy himself on the SEP?

CSQ Say again Flight.

HOU Did he track the ATDA with the radar to satisfy himself on the SEP?

CSQ Affirmative.

HOU And did you talk to him about bringing it up one rev from now and taking a look again?

CSQ That is affirmative.

HOU Okay, did he take a look at the computer running light and pre-launch before the shut the computer down?

CSQ The computer and radar was already powered down at acquisition.

HOU Okay, that is what I thought I copied. Okay, thank you.

CSQ Roger. We have LOS on both vehicles.

HOU Roger.

AFD CSQ Cap Com, AFD.

CSQ AFD, CSQ Cap Com.

AFD Roger, will you please give us a PFS, on NA95 Metro Alpha 95, tape recorder indicator.

CSQ Roger, stand by. AFD, CSQ Cap Com.

HOU Go.

CSQ We read MA 95 is two percent both scale.

HOU Roger. Thank you CSQ.

CSQ Roger.

AFD Hawaii Cap Com, AFD. Hawaii Cap Com, AFD

HAW AFD, Hawaii.

AFD Roger, did you receive your MI?

HAW Roger.

AFD Did you monitor CSQ's pass.

HAW Roger, most of it. As much as I could.

AFD Okay. You understand we had - found tape recorder indication that it was off. We still want you to try the tape dump anyway.

HAW Roger, will do.

AFD Okay. We did not include MI. It went out from the surgeon on OPM on the water gun.

Stand by.

Your OPN 20 57 Zulu. Get water gun count and report on crew comfort.

HAW Yes, we have that.

HOU Okay. And we have nothing else for you. Besides your crew status report tape dump.

HAW Roger.

END OF TAPE

This is Gemini Control at eight hours into the mission. The Gemini 9 spacecraft is approaching the West Coast of South America. The crew is eating their evening meal right now. Voice communications between the control center and the Coastal Sentry Quebec were very bad during the pass over that station, we were forced to go to teletype. We did ascertain that Tom Stafford is completely satisfied with his separation burn. He has tracked the ATDA on radar and is satisfied with the separation. He reported 40% OAMS fuel remaining. The Gemini 9's orbit is now 160 by 158 nautical miles, the Augmented Target Docking Adapter is in an orbit 161 by 159 nautical miles. During the night Gemini 9 will gradually pull away from the ATDA and will -- by the time the crew awakens will be approximately 60 miles ahead of it. We will update the crew at that time on the further maneuvers to be done for this rendezvous from above -- where the spacecraft will approach the target vehicle from above. We did have good communications over the Hawaii tracking station and we'll play that tape for you now.

HOU FLIGHT — Hawaii, Flight.

HAW — Flight, Hawaii.

HOU FLIGHT — We tried to find out something over CSQ which we weren't able to do because they had powered down the computers, we were wondering, if first, they waited a while after they were in prelaunch mode before they shut the computer down, and if the waited at least 18 seconds, if they saw the computer running light come on. Do you think you could find that out, please? It would help

in the trouble shooting ans what happened earlier.

HAW — Roger, you want me to find out if they hesitated for 18 seconds in the prelaunch mode and if they got the computer run light.

HOU — Yes, but I won't say hesitate.

HAW — Okay.

HOU FLIGHT — Haw, Houston Flight.

HAW — Go, Flight.

HOU FLIGHT — One more thing, we'd like to have you ask the crew how they feel about the recepticle. They were going to try to fool around with the left one to see if they could get it working again by playing with the connectors when they had time. They were also going to see if they could move the right one over. You might ask them if they've had time to look at that and what their plans are.

HAW — Your auxiliary recepticle is that what you are talking about?

HOU FLIGHT — That's correct.

HAW — Okay.

Flight, Hawaii.

HOU FLIGHT — Go ahead Hawaii.

HAW — Is it part of his power down check list to turn the OAMS control circuit breaker off?

HOU FLIGHT — Stand by.

HOU FLIGHT We're checking, we think it is.

HAW Gemini 9, Hawaii.

S/C Hawaii, 9.

HAW Roger, how is it going? Aw, real good. We're powering down now and we've completed the optical rendezvous real good, right on schedule. And there's no trouble at all breaking optically and it fell in sight like we planned it would. Right now, we've powered down and getting squared away to start the eat period.

HAW Roger, understand. We expected to see a thermometer in somebodys mouth this time.

S/C We'll give you one.

HAW Okay. Have you got your control power switch open on OAMS?

S/C No, power is closed. Control power is off.

HAW Roger, understand.

S/C If you knew what we were doing you wouldn't have expected to see a thermometer.

HAW Roger, understand. Gemini 9, Hawaii.

S/C Go ahead, Hawaii.

HAW During your power down, did you stay in a prelaunch for 18 seconds before you proceeded with the powering down?

S/C That's affirm. We stayed in prelaunch, put out the light and then powered down about 15 minutes later.

HAW Okay, you did get the computer run light.

S/C That's affirm.

HAW Okay, have you tried switching auxiliary recepticle yet?

S/C No, we'll trouble shoot that in a little bit here.

HAW Okay, very good. Okay, we have a good reading on the command pilot on the oral temp.

S/C Okay, here comes the pilot.

HAW Do you happen to have any food or water report as yet?

S/C We've completed eating one meal, we're getting ready to start another one. And I'll give you a hack on the water in a second.

HAW Roger.

S/C We've had 40 ounces of water, split about equally.

HAW Roger, understand. Did you identify that meal for us?

HOU FLIGHT Let them go and eat Hawaii.

HAW Roger, will do.

S/C Roger, meal c and we split it.

HAW Roger, thank you.

HOU FLIGHT Hawaii, Houston Flight.

HAW Go flight.

HOU FLIGHT Anything on that ACQ yet?

HAW Everything looks real good, we've got some word indication on the tape dump. I'll explain that later. It's looking good though on the modulation.

HOU FLIGHT Okay. I guess they've started eating, let's just let them go.

HAW You want us to delete the thermal condition and all that.

HOU Their what?

HAW Their temperature, how they feel. That was part of the question we were supposed to ask.

HOU Okay, I guess they're taking it now.

ASCENSION We have valid oral temp on both crew members, Hawaii.

HAW Okay. Do you have any comments to make on the thermal condition up there? How they feel.

S/C Roger, we were warm during both of the rendezvous and now that we've powered down, we're starting to cool off. Neither one of us were perspiring at all.

HAW Okay, very good. Flight, Hawaii.

HOU FLIGHT Go ahead.

HAW Okay, we're still showing him on 8 pounds on both systems.

HOU FLIGHT — Hawaii, you're just about out of him right now you'll probably let him cool off a little bit. Check on RKV to see if it's in B.

HAW — We're approaching LOS anyway.

HOU AFD — Hawaii, Cap Com, AFD.

HAW CAP COM — AFD, Hawaii.

HOU AFD — Give us a Gemini LOS Bravo.

HAW CAP COM — Its on its way.

HAW — Hawaii has LOS.

HOU — Roger.

Okay, Hawaii, what did you want to tell us about the tape dump?

HAW — Well, when the thing first started the tape -- I was showing that -- I was getting tape motion and then in a little bit it came back on and we continued the modulation for -- it was still modulating when I turned it off after about 6½ minutes. It looked like modulations but we shouldn't have had that much on there I wouldn't have thought. But I turned it off before it went over the hill, without waiting until I got the end of modulation.

HOU FLIGHT — Hawaii, Houston Flight.

HAW — Go Flight

HOU FLIGHT — Why don't you go ahead and look at that tape and see what it looks like.

HAW — We're going to.

HOU FLIGHT	Then let us know.
HAW	Roger, will do.
HOU	Guaymas go remote.

END OF TAPE

This is Gemini Control at 8 hours, 10 minutes into the flight and Gemini 9 has just been acquired by the Rose Knot Victor tracking ship off the coast of South America. Gemini 9 just began its sixth revolution a short time ago and we'll tune in now and see if we can hear some of the conversation from the Rose Knot to the spacecraft.

S/C	(Garbled)
RKV	Say again.
S/C	It doesn't make any difference, we can rendezvous in about any type of situation you give us.
RKV	Ok, they would kind of like to try this type of approach, daylight from above.
S/C	(Garbled)
RKV	Ok, Gemini 9. We would also like to get confirmation that you have the C-bands in the command position.
S/C	.....adapter continuous reentry to command, we'll go adapter to command.
RKV	Roger
S/C	RKV this is Gemini 9. Our fuel budget looks pretty good.
RKV	Say again.
S/C	Roger. Looks like we have enough fuel to hack it.
RKV	Roger, very good.
RKV	Cape Flight we are showing on the current, main bus current which shows that the ATDA lights are still on.
HOU FLT	RKV Flight. We are going to leave the running lights on. We want to be sure the acq lights are off, the acquisition lights.

RKV Ok, fine, we'll go with it.

HOU FLT Do you concur that it looks like they are off.

RKV No, we are not sure, we think one set of the lights are on, but...

HOU FLT That will be the running lights.

RKV Ok, we are not positive of the other, that's for sure.

HOU FLT Ok.

RKV Ok, Gemini 9, we just put a TX into the spacecraft to turn TM off for us after LOS.

S/C Roger, we saw the light.

RKV Roger.

HOU FLT RKV, did you command his C-band on?

RKV That's affirm. Oh, which C-band did you want on?

HOU FLT That's on Gemini. Oh ignore that. We're going to turn it on next rev, disregard this one.

RKV Ok, he's got both C-bands in command position and with the TX in there its gonna shut both the spacecraft C-bands off.

HOU FLT Roger, that's complete configuration I gave you.

RKV Very good, and we have turned the C-band number one on the ATDA.

HOU FLT Roger.

HOU FLT RKV Flight. We would like a Gemini main.

RKV Roger, do you want it at LOS or now.

HOU FLT Why don't you give us one now and at LOS?

RKV Ok. Coming at you.

RKV	Gemini 9, RKV. We have about one minute to LOS.
S/C	Roger.
RKV	Ok, flight, I'm not sure he had his TM switch in the right configuration. We sent a TX but we did not get a cutoff at TX time.
HOU FLT	Roger.
RKV	It might be ok to have the next site check with him on the switch position.
HOU FLT	Roger, we'll have him check to see if he's got the TM when he comes over the hill.
RKV	Roger, we are getting the command history printout here now. We'll see what we really did send.
HOU FLT	Roger.

END OF TAPE

This is Gemini Control at 8 hours, 40 minutes into the flight. Gemini 9 has just passed out of range of the Tananarive Station on its sixth revolution. There was considerable conversation on this pass between the spacecraft communicator here in the control center, Astronaut Dick Gordon, and Command Pilot Tom Stafford. We'll play that tape for you now.

RKV Flight, this is RKV

HOU Go ahead RKV

RKV Roger, we got a command entry print out and we did send TX and it - we did get a map back for it.

HOU Roger we'll check that at CSQ.

RKV Roger.

HOU RKV, Flight

RKV Go ahead RKV

HOU Did you say that you got a map on the TX?

RKV Thats affirm.

HOU Okay, thank you.

RKV Flight in addition to that the spacecraft also said he had a DCS light which

HOU Yes that light showed up as soon as it got in.

RKV Our numbers show that it was the right value that went out.

HOU And it just didn't shut off.

RKV Say again.

HOU And it just didn't shut off.

RKV Thats affirm.

Tananarive go remote.

HOU Gemini 9 Houston. Gemini 9 Houston.

S/C Hello Houston, Gemini 9 here.

HOU Roger Tom. I have some questions from the Cape concerning the shroud.

S/C Go ahead. I guess we're the experts.

HOU Yes, I'm sure you are.
I understand the shroud gap at the base of its about three or four inches, is that correct?

S/C That is affirmative. Its about three or four inches wide down at the (garbled) of the explosive bolts at the base of the shroud where it touches (garbled) in between. One coil spring was attached, still in between both of them. The other spring wasn't. (garbled)

HOU Roger, understand. Can you estimate the gap between the shroud at the strap and also at the apex.
Over.

S/C And then there was these small wires hooked to a connector that pulls the bolts.

HOU Nine, Houston.
Gemini 9 Houston.

S/C Stroked to the maximum, when the signal was sent to unrigidiz control unit B in vacuum four was real loose there. I'd say about 15 to 20 degrees.

HOU Roger Tom. Let me ask you some questions about it.
Can you estimate the distance between the shroud at the strap and also at the apex? Over.

S/C Say again.

HOU Distance between the shroud halves at the strap and at the apex.

S/C Roger. It's kind of hard to tell but it stretches it out about six inches.

HOU Okay. What about the apex of it?

S/C At the top of it

HOU Yes Tom

S/C Its a good two and a half feet, maybe three feet.

HOU Okay does the strap appear to be tight or does it appear to be loose?

S/C Let's take the shroud. Its extended out to the length of those two pyro connectors on each bolt. It opened the back in about four inches and opens up like a couple of jaws and you have the total configuration. The wedge angle between the two halves is a good 20 degrees, maybe in excess to that.

HOU Okay. Can you tell the lengths of the spring cartridges? Can you see those well enough to tell me if they look like their fully extended?

S/C The spring cartridges look like they have just about reached their full stroke from the ones that we saw at the Cape the other day.

HOU Okay, understand. Does it look like you can get to the lanyard on the pyro wires just inside the shroud? Over.

S/C Theres still connectors there that - from all that I can see the pressure was up before the lanyards were ever installed.

HOU Okay, you think the lanyards are not even there?

S/C I looked as we flew in within a couple of feet or about as close as I could get the with the rear (garbled) snips, save (garbled) which was about two feet. I could plainly see the insulation on the wiring, it was frayed. You could see the connectors where they hooked into the bolts and the way it was (garbled). But I couldn't actually see the lanyards on it.

HOU Okay. I understand. If that thing is opened far enough do you think that you could get in to pull the lanyards on the QD on the umbilical? Over.

S/C Say again.

HOU Do you think you could pull the lanyard on the quick disconnect inside the shroud?

S/C Let me have Gene talk to you on that.

HOU Understand and one last question on the shroud. Has it moved in relationship to the TDA? Has it shifted fore and aft or has it rotated any? Over.

S/C It pitched up and down. In other words when the unrigidized and rigidized (garbled) it opened and closed. The data opened and closed a little bit and then rotated. The total X axis of the shroud pitched up and down a little bit, about 15 degrees. The jaws opened a little bit.

HOU Understand. Did you say it did rotate also?

S/C No not much rotation is visual mostly just the total shroud mass pitched up and down about 15 degrees.

HOU Okay, I understand. I think we've talked about that shroud long enough. You can ignore this locking on the target again at CSQ. Don't bother doing that. We're satisfied with the separation ourselves. The S-12 experimenter wants you to listen for the door opening when you activate that before the sleep period. Over.

S/C Say again.

HOU When you activate S-12 the experimenter would like to have you listen and see if you can hear the door opening.

S/C Roger, will do that.
Understand. What is the latest plans for EVA in the morning? Are they going to do it with the ATDA or without it?

HOU Tom, we're going to do it with the ATDA. And, we'll do it - we'll do the EVA prep right after re-rendezvous. Over.

S/C Roger.

HOU If we do that re-rendezvous in daylight which we would like to do down here, we're going to cut a little bit into your EVA prep but it still should give you about three hours and 45 minutes. Over.

S/C Okay. We'll probably need every bit of it.

HOU Well don't rush it. We think we can give you plenty of time to do that. But, it will be after the re-rendezvous.

S/C How does the fuel budget down there? It looks like we have plenty for using a delta H at seven miles.

HOU Yes, we think your in good shape.

S/C Yes I think we're in real good shape on the fuel. Okay, we're still keeping both cooling pumps on. A pump and both suit fans on. We're still a little warm in here.

HOU Okay, you might as well leave them on until you cool down and we'll talk to you about the temperature again over CSQ.

S/C Okay, we'll find it.

HOU Nine Houston, Tom have you had a chance to look at that auxillary receptacle yet?

S/C No, we're still busy trying to get some food and get squared away. We'll do this in the next hour or so.

HOU Okay. If you can't get that left one fixed, we've got a plan down here that you could use the right one but we'll hold up and wait and see what you say about it.

S/C OK.

HOU Nine Houston. We have 15 seconds to Tananarive LOS we'll see you later.

S/C Roger.

TAN Tananarive has LOS.

Tananarive Local.

END OF TAPE.

This is Gemini Control at nine hours into the flight. The tracking ship Coastal Sentry Quebec off the coast of Japan is in contact with Gemini 9. We will play back the start of this pass for you now.

S/C You want the adapter C-Bands. Is that affirm?

CSQ That's affirm. Let's have your AOS.

S/C Roger.

CSQ AFD, CSQ Cap Com.

AFD AFD.

CSQ Are you going to leave this off or do you want the crew to go to continuous?

AFD We're planning to turn it back off over RKV.

CSQ Okay.

AFD CSQ Cap Com, AFD.

CSQ AFD, CSQ Cap Com.

AFD Roger, another item to add to your list.

CSQ Say again.

AFD I say, one more item to add to your list.

CSQ Roger

AFD On the ATDA, send C-Band off - command C-Band off. Sequence 14 Bravo at your LOS.

CSQ Roger, understand.

HOU CSQ Cap Com, Flight.

CSQ CSQ Cap Com.

HOU You've got a few things to do there. Do you think you'll get them all done in your pass?

CSQ Roger, I think we'll be able to make it, Flight.

HOU Okay, you might get the fuel cell purge started. That usually takes longer.

CSQ Roger.

HOU Okay. And if you don't get the readouts we'll pick them up at Hawaii.

CSQ Roger, understand.

HOU CSQ, Flight.

CSQ Flight, CSQ Cap Com. Go ahead.

HOU One more think we want you to do last, only if you have time, is, you can advise them that at 9:21:34 there is a storm - a tropical storm - building about 77 miles to the south of the ground track. If he's in that attitude he might see something down there.

CSQ Roger, understand.

HOU Okay. Go ahead.

CSQ CSQ has TM solid Agena - or on ATDA. And we saw the ATDA as go.

HOU Roger.

CSQ We're having quite a few dropouts. Flight, we have a reunited signal on Gemini. We have TM solid on Gemini.

CSQ Gemini 9, CSQ Cap Com.

S/C Gemini 9. Go, CSQ.

CSQ We show you go on the ground. We'd like to inform you that we're going to command the L-Band off on the ATDA.

S/C Roger.

CSQ Roger. You can start your fuel cell purge and your on time now.

S/C Okay, commanding purge.

CSQ We also have a PLA and a slight...update for you when you're ready to copy. When you're ready.

S/C Roger, understand, and I'll give you a call in a minute.

CSQ Roger.

....the C-Band and the L-Band is off. The adapter C-Band is on and the L-Band on the ATDA is off.

HOU Roger.

S/C CSQ, Gemini 9. I'll go ahead and take some of those PLA updates and I'll have to stop you because I'm still going on with the purge.

CSQ Roger, understand. Area 7 dash 3. Hack 10:08:32. RET 400 K, 21 + 06. RETRB 26 + 57. Bank angle for all areas, rev left 85, roll right 95. Weather in this area is marginal and no separation maneuvers required for any area. Area 8 dash 3. 11:44:18. RET 400 K, 21 + 02. RETRB 26 + 58. Weather marginal. Area 9 dash 3. GETRC 13:18:56.

RET 400 K, 20 + 57. RETRB, 26 + 57. Weather good. Area 10 Delta. That's area 1 zero Delta. GETRC, 14:17:05. RET 400 K, 21 + 34. RETRB, 26 + 57. Weather good. Area 11 dash 2. GETRC, 15:51:56. RET 400 K, 21 + 23. RET 400 K, 21 + 23. RETRB, 27 + 05. Weather good. Area 12 dash 2. GETRC, 17:25:56.....(complete static) Do you copy?

S/C Roger, Gemini 9. We got all the updates. Weather understand all ...bank left 85, bank right 95.

CSQ That's affirmative. No separation maneuvers are required.

S/C Roger, we got that. Thank you.

CSQ You ready for a flight plan update?

S/C Stand by one.

CSQ Gemini 9, be advised we're going to turn your adapter C-Band off on the ATDA.

S/C Roger, understand. You can go ahead with the update, our purge is complete.

CSQ And would you....your...switch to ECS O_2.

S/C ECS O_2.

CSQ Load es time of 07:13:19. Rev 5 95.3 east, right of Ascension. Will you bring your quantity read switch to fuel cell O_2.

S/C Okay.

CSQ ..... zero hours, 01 minutes. ....012. Would you place your quantity read switch to fuel cell H_2. Time 09:00:00. Sequence 01 4....Do you copy? Houston Flight, CSQ Cap Com.

HOU Go ahead, CSQ. We'll pick the rest of it up over Hawaii.

CSQ Roger. We have LOS both vehicles.

HOU Roger. Did you get the C-Band off on the ATDA?

CSQ We got the C-Band off on the ATDA, the L-Band off on the ATDA. We got the cryo quantity readouts on ECS O_2 and fuel cell O_2. We did not get fuel cell H_2.

HOU Understand.

CSQ We did not complete the flight plan update.

END OF TAPE

This is Gemini Control at nine hours 22 minutes into the flight. Gemini 9 has passed out of range of the Hawaii tracking station on its sixth revolution. We will not attempt voice communication with the crew for the next eight hours. They are in their sleep period at the present time. Flight plan calls for them to awaken at 17 hours elapsed time. We have a tape of the Hawaii pass and we will play that for you now.

HAW Gemini 9, Hawaii.

S/C Go ahead, Hawaii

HAW Roger, everything is looking good on the ground. We would like you to place your quantity read switch to fuel cell H2 position please. Roger we are going to get a tape dump on you this time. We have a flight plan update for you when you get ready to copy.

S/C Go ahead Hawaii, Gemini 9.

HAW Okay, you probably have part of this. Node 07 13 19. Rev 5 95.3 east right Ascension 20 hours 01 minutes. S-12 09 00 00, 01 after all overboard dump S-12 17 00 00 02 that is all.

S/C Gemini 9 Roger. We got Node 07 13 19, Rev 5 95.3 east, Ascension 20 hours 1minute, S-12 09 00 01 after all overboard dump and S-12 17 00 02

HAW That is 17 00 00 sequence no 2.

S/C We got sequence one and sequence two.

HAW Roger. And also there is possible storm that will

HAW be 77 miles south of your ground track in elapsed time of nine hours 21 minutes 30 seconds and you have to be in the right attitude to look at it.

S/C Okay, we will give it a try.

HAW Okay, you can place your voice read switch back to the off position. Have you had time to get around to that auxiliary recepticle yet?

S/C Negative. We haven't.

HAW Roger.

S/C It operates the camera all right, the problem we had was operating the sight. We did a little switching around, but we can't - we haven't really made any good thorough / trouble shooting yet.

HAW Roger. Understand.

HOU Hawaii, he says that it will operate the EVA camera all right on the left hand side. Is that what he said?

HAW He said it would operate the camera properly but the sight would not operate.

HOU Okay, understand. That is good. That is what we were really worried about.

HAW Okay.

Gemini 9, Hawaii

S/C Go ahead Hawaii.

HAW The camera is what they were really worried about.

S/C Okay, were pretty worried about the sight there for a while, but we rigged it up, from the right recepticle and the camera works okay from the left.

HAW Okay, very good.

HAW Flight, Hawaii

HOU Go Hawaii

HAW Okay, this here tape recorder is looking weird again, does V com have anything he wants me to try before I lose it. The tape motion has stopped again. That happened right after I started to dump.

HOU Do you have any modulations, Hawaii?

HAW We are getting the same thing we got last time. It doesn't look any good.

HOU Roger. Turn it off, Hawaii.

HAW Okay. Okay, I am showing tape motion again now.

HOU Understand you are showing tape motion with it in the off position.

HAW Roger.

HOU Hawaii, Cap Com, AFD.

HAW Go ahead.

HOU Leave it in the off position. We will look at it again RKV.

HAW Roger.

HAW Gemini 9, Hawaii. We have 30 seconds to LOS. Standing by.

S/C Gemini 9. Roger. Looks like we are going to miss that storm. We are pointed up and to the northwest right now.

HOU Roger, understand.

HAW We have LOS on both vehicles.

END OF TAPE

This Gemini Control at 10 hours, 10 minutes into the mission. Gemini 9 is now over the continent of Africa in its seventh revolution. The crew is in a sleep period. Ground tracking confirms Tom Stafford's report that the separation maneuver was a good one. The range is now about 20 miles between the vehicles, with Gemini 9 ahead and below of the target vehicle. This sleep periods ends at 17 hours elapsed time since liftoff. That will be about 12:40 a.m. CST. It appears now that the height adjust maneuver will take place one hour later, 18 hours elapsed time. At that time the Gemini 9 range from the target vehicle will be about 80 miles. This maneuver will place the Gemini apogee seven miles above the target, then the crew will perform a co-elleptic maneuver to make the Delta H or the difference in altitude seven miles at all points in the orbit. They will later perform a terminal phase and rendezvous with the target vehicle from above. Ground tracking indicates that all systems on the spacecraft are performing well. This is Gemini Control, 10 hours, 11 minutes into the flight of Gemini 9.

END OF TAPE

This is Gemini Control at 11 hours and 10 minutes into the flight, and Gemini 9 is approaching the end of its seventh revolution. Tracking stations report both vehicles are go, and that both pilots appear to be sleeping. We will continue to monitor both vehicles from the ground during this sleep period. This is Gemini Control.

END OF TAPE

This is Gemini Control at 12 hours and 10 minutes into the flight. Gemini 9 is off the coast of China in its eighth revolution and the tracking ship Coastal Sentry Quebec has telemetry acquisition. The CSQ reports both vehicles are go, both pilots are apparently asleep. We show now that Gemini 9 is gradually pulling futher away from the target vehicle...show a range of about 38 miles at the present time with Gemini 9 in a 160 by 158 nautical miles orbit and the target vehicle in a 161 by 160 nautical mile orbit. The Gemini 9 will continue to gradually pull further away from the target vehicle until it reaches a range of about 80 miles at about 17 to 18 hours elapse time. This is Gemini Control.

END OF TAPE

This is Gemini Control at 13 hours 11 minutes into the flight. Gemini 9 is over the South Atlantic Ocean in its 9th revolution, and is within range of the Ascension Island track station. We're about mid-way through the eight hour sleep period. We have not attempted to contact the crew since Gemini 9 was in range of the Hawaii station on the 6th revolution. We are tracking both vehicles, however, and they are go. The Flight Surgeon reports that he notices both pilots stir once in a while, but they both seem to be resting well. During the pass over the Rose Knot Victor tracking ship, off the coast of South America, Rose Knot reported Gemini 9 appears to be in slow drift rates in attitude. It's still increasing its range from the target vehicle, we show a range now of about 45 nautical miles, ahead and slightly below of the target vehicle. This is Gemini Control.

END OF TAPE

This is Gemini Control. 14 hours, 10 minutes and 31 seconds after lift-off of Gemini 9. Gemini 9 spacecraft is now in its 9th revolution and is approximately over the south central Pacific. It now leads the target docking adapter by some 50 nautical miles and is slightly below the orbital measurements of the present time of the target docking adapter, has 160.2 nautical miles apogee by 160 nautical miles perigee. The Gemini orbital values at this time is 160.2 by 158.4 nautical miles.

Both pilots are still asleep at this time and during the recent pass, some 20 minutes ago over the tracking ship Coastal Sentry, the Cap Com out there reported that the telemetry showed that both pilots were indeed asleep and that both birds were go on the ground. Prior to this sleep period, the crew activated a cover behind the hatch on the outside of the spacecraft for the S-12 micrometerorite collection experiment, in which we will study the nature of micrometerorite impacts to control exposure of special prepared plates and also to determine the effects of space environment on biological specimens. After the crew wakes up they will close this door over the experiment package by electric motor which drives the cover and the experiment will later be brought in the cabin at the end of the extravehicular activities and stored for study by the experimenter after recovery of the spacecraft. One purpose of running the experiment during the sleep period, is that the spacecraft is in a drifting flight and no thrusters are being fired and therefore the experiment plates would not be contaminated.

At 14 hours and 12 minutes and 45 seconds after lift-off, this is Gemini Control.

END OF TAPE

This is Gemini Control, 15 hours 10 minutes and 31 seconds after lift-off of Gemini 9, and 51 hours 59 minutes and 7 seconds after lift-off of the target vehicle. Flight Director Cliff Charlesworth, the friendly Green team of Flight Controllers is taking over here in Mission Control, from the Black team. Gemini 9 is now in its 10th revolution, the target is in its 39th revolution. The tracking ship Coastal Sentry should acquire the spacecraft in about 7 minutes. During the pass over the tracking ship Rose Knot, during the last revolution, Spacecraft Commuicator, Keith Kundel, confirmed that both vehicles were go as it went over the hill. The Flight Director released the RKV for the night, since no more of the spacecraft revolutions for the next several hours will pass over the Rose Knot. At Gemini 9, ground elapsedtime of 15 hours 11 minutes 33 seconds. This is Gemini Control.

END OF TAPE

This is Gemini Control. 16 hours, 10 minutes and 30 seconds after Gemini 9 lift-off. During the pass over the Coastal Sentry tracking ship midway through the last revolution, the spacecraft communicator on the ship reported that both vehicles were go and that both crewmen were still asleep. The next station to acquire Gemini 9 will be the Canary Island station at approximately 10 minutes.

The spacecraft is now beginning its 11th revolution and the target is in its 41st revolution. At this time the spacecraft is leading the target by some 80 nautical miles. At 16 hours, 11 minutes and 10 seconds after lift-off, this is Gemini Control.

END OF TAPE

This is Gemini Control at 17 hours 10 minutes and 30 seconds after lift-off of Gemini 9. The next station which will acquire the Gemini 9 spacecraft will be the Antiqua station of the Eastern Test Range some 34 minutes from now, at which time the crew will be waked up and updates for the series of third re-rendezvous maneuvers will be passed up to the crew. First of these maneuvers will take place at 18 hours, 23 minutes elapsed time. It will be a very small posigrade burn of two feet per second. It is the first in a series of maneuvers for the third re-rendezvous from above.

Gemini 9 is now nearing the end of the 11th revolution and is presently over the south Pacific just east of Australia. At 17 hours, 11 minutes, and 25 seconds after lift-off, this is Gemini Control.

END OF TAPE

This is Gemini Control, 18 hours 10 minutes and 30 seconds after lift-off. Gemini 9, presently, is in the 12th revolution over Arabia, during the present pass over the Eastern Test Range the Spacecraft Commuicator Neil Armstrong here in Mission Control, gave Gemini 9 a call. The crew was awake at that time, in fact they had already started powering up the spacecraft and they further confirm that the door to the micrometerorite collection experiment outside the spacecraft on the adapter section have been closed at that time. Armstrong passed up to the crew several maneuver up-dates, and gave them a go to begin a fuel cell purge. Shortly thereafteer the spacecraft passed over the Canary Island tracking station, at which time the plan landing area up-dates for several revolutions in the future, were passed up to the crew. We have a tape of the combined passes over the Antigua station, Canary Islands. and a brief exchange of comment between Neil Armstrong and the crew over the Kano, Nigeria, voice remoting station. Let's here that tape now.

MC LOS Antigua.....

MC Gemini 9, Houston....Gemini 9, Houston. Standing by for your call.

S/C Good morning Houston, Gemini 9.

MC Good morning, how are you doing?

S/C Warmed up, we're down now to 0 0 0.

MC You say you have, you've started your power up?

S/C Roger. Platform is fairly well alined.

MC Is your computor up yet?

S/C Hold on for just a second.....

MC Okay would like to have you turn it on and tell us whether you get a running light.

S/C Roger.

MC In pre-launch.

S/C Computer coming on.

MC While you're waiting you can turn the S-12 collecter door closed.

S/C Roger. We've already got the collecter door closed.

MC Roger. I've got an R SEP T change and some maneuver up-dates when you're ready to copy.

S/C This is Gemini 9 we have the computer running, 18 seconds.

MC Very good, glad to hear that then. Let me know wher you're ready to copy the R SEP T, and maneuver up-dates.

S/C Go ahead Neil.

MC Okay, you're R SEP T, is now address 54, 74 966, this is a fairly big change but we've checked it out.

S/C Understand 54, is now 74 966.

MC Roger, and your elevation angle or depression to aline the platform will be minus 9 degrees.

S/C Roger, understand.

MC Okay and don't forget that you've got to change address 24.

S/C Okay.

MC Okay we're ready for.....your height adjustment maneuver.

S/C Okay, shoot.

MC Okay let me give you the phase adjust first, the

MC GETB 18 23 19er, Delta V 2.0, burn time 3 seconds. Yaw 0, pitch 0, address 25, 000 20, 26 and 27 all zips, aft thrusters posigrade, now I'll go ahead with the height adjustment now....19 GETB is 19 08 16, Delta V 17.0, burn time 22 seconds. Yaw 0, pitch 0, address 25, 00 170, address 26 all zips, address 27, zips, aft thruster posigrade, that's height adjustment, want us to go ahead?

S/C Okay was that two height adjust or was the first one attitude also.

MC The first was phase adjust.

S/C Okay. Phase adjust was it, 18 24 19er? Two feet per second, 3 second burn, yaw o, pitch 0, 25 is 000 20, 26 and 27 all zeros, after thruster posigrade.

MC Roger, that's correct I've got a mode up-date.

S/C I'd like the GETB of the height adjust, please.

MC Okay the GET burn of the height adjust is 19 08 16.

S/C ....19 08 1 something.

MC That's 19 08 16.

S/C ....16 Roger, and I count the rest to be 17 feet per second, 22 second burn, yaw 0, pitch 0, 25 00 170, 6 and 7 zeros aft thrusters, posigrade.

MC That's correct. And I got a note for you.

S/C Okay.

MC It says time is 16, 14, 21, it's rev 11, 43 degrees

MC west, right ascension 19 hours 50 minutes.

S/C Roger copy note to be 16 14 21, rev: 11, 43 degrees west of Ascension 19 hours 15 minutes.

MC Roger that's correct. You can do a fuel cell purge between now and Canary which will be about 5 minutes or so from now, and they will have a block up-date on PLA's for you at Canary. Advise that they've got a shroud in work, Dave Scott is out at Los Angeles working on the procedures for it.

S/C Okay fine, and you say go ahead with the fuel cell purge now?

MC Yes, that's correct. We're approaching LOS here we'll give you the PLA's over Canary.

S/C Roger, how you reading us Neil?

MC Reading you load and clear Tom.

MC LOS Antigua.

CNV This is Cape Contact,.....

We have tape contact Flight.

END OF TAPE

CYI	Canary Islands has Gemini TM solid.
HOU FLIGHT	Roger.
CYI	We have target on TM solid.
HOU FLIGHT	Roger.
CYI	He's purging 02 in section I, Flight.
HOU FLIGHT	Roger.
CYI	Canary has C-band track.
HOU FLIGHT	Roger.
CYI	Target is go also, Flight.
HOU FLIGHT	Spacecraft and target is go.
CYI	That's affirmative. He's purging 02 in section II.
HOU FLIGHT	Roger.
CYI	We'll get a quanity read-out as soon as he ignitions, this purge, Flight.
HOU FLIGHT	O.K.
CYI	Gemini 9, Canary Cap Com.
SPACECRAFT	Canary, Gemini 9.
CYI	Roger, have a PLA update for you, when you are ready to copy.
SPACECRAFT	Could you give us a hack at GET 175700?
CYI	Roger, will do. 30 minutes, 30 seconds in hack.
SPACECRAFT	After the hack you can go ahead with the update.
CYI	Roger, will do. 3, 2, 1, Mark. 175700.
SPACECRAFT	Roger, give us a hack at 10, just for a recheck.
CYI	Roger. 3, 2, 1, Mark. 10 seconds.
SPACECRAFT	Roger, we're in sync.
GYI	Roger. We've completed our command sequence/on the Flight, ATEA.

HOU FLIGHT Roger. Canary, send us another OBC Class I.

CYI Roger.

CYI Gemini 9, are you ready for your PLA update?

SPACECRAFT Roger, all set, any time.

CYI Roger, 13 dash two, 190232, 21 plus 22, 27 plus 22, Roll left 85, roll right 95, weather good, negative sep maneuver. 14 dash one, 20 28 25, 22 plus 35, 28 plus 25, roll left 85, roll right 95, weather good, negative sep maneuver. 15 dash one, 22 06 07, 21 plus 11, 26 plus 59, left 85, right 95, weather good, sep maneuver. 16 dash one, 23 41 40,

HOU FLIGHT Canary systems, Houston Flight.

CYI 21 plus 18,

CYI Canary systems, here.

HOU FLIGHT If Mike could speed it up, Retro advises that the last three columns are all the same, he's just reading the time.

CYI Rog. Good, affirmative on the sub-maneuver.

SPACECRAFT Three columns all....got that update.

CYI Gemini 9, the last three columns are all the same, here on out, so we'll just give you the first, O.K.

SPACECRAFT O.K., now what were the first two areas that you gave me?

CYI Say that again.

SPACECRAFT Give me the first two areas...just the areas, I got all the numbers, but what were the areas on the first two?

CYI O.K., the first area was 13 dash two; the second area

CYI — was 18 dash one.

SPACECRAFT — O.K., you can go ahead.

CYI — O.K., the next area is 17 dash two, 25 26 01, 21 plus 15, 27 plus 12, would you put your quantity read switch to ECS 02?

SPACECRAFT — Roger.

CYI — O.K., area 18 dash four, 28 07 53, 21 plus 11, 27 plus 16, area 19 dash four, 29 43 16, 21 plus 18, 27 plus 19, area 20 dash three, Gemini 9 give us fuel cell 02, please. Ok, area 20 dash three, 21 02 25, 21 plus 03, 27 plus 07, and give us fuel cell H2. That's the end of the PIA update, Gemini 9.

SPACECRAFT — Roger, the only question that I have is 20 dash three REFV, please say again.

CYI — REFV for area 20 dash three, 27 plus 07.

SPACECRAFT — Roger, and the only two that require sep maneuvers are 151 and 161 is that correct?

CYI — That's affirmative. Negative on that, the sep maneuvers comes from one through all the rest 151 through 20 dash three. You have a sep maneuver with all of those.

SPACECRAFT — Roger, I've got them all.

CYI — O.K., could you give us a prop quantity read-out, please?

SPACECRAFT — Roger, reading at about 39 percent.

CYI — Roger, copy 39. We have you as "GO" on the ground here, Gemini 9, how did your fuel cell purge go?

SPACECRAFT — Fuel cell purge went well and we're "GO" up here.

CYI — Roger.

MCC FLIGHT — Copy. Houston Flight.

CYI	Go ahead, Flight.
HOU FLIGHT	You might advise him that you did turn the L-band beacon on....on the ATDA
CYI	Roger. Gimini 9, Canary. We did turn the L-band on on the ATDA .
SPACECRAFT	Roger.
CYI	9, Canary. You can turn your quantity read off at this time. Canary has C-band LOS, Flight.
HOU FLIGHT	KANO, go remote.
KANO	Roger. Will go.
CYI	Canary has Gemini LOS.
HOU FLIGHT	Roger, Canary.
KANO	Kano has contact.
HOU FLIGHT	Roger, Canary. Everything look O.K. as it went over the hill?
CYI	Everything looked real good, Flight, all the way through.
HOU FLIGHT	O.K.
HOU FLIGHT	Gemini 9, Houston one minute from LOS at Kano.
SPACECRAFT	Roger, Houston. All set up for our burn...garbled... Houston.
HOU FLIGHT	Roger, congratulations for making a pass seven day.
SPACECRAFT	Roger, Neil, thank you.

END OF TAPE

This is Gemini Control at 18 hours, 30 minutes and 30 seconds after liftoff. Gemini 9 at the present time is within about three minutes of being acquired by the Carnarvon, Australia, tracking station. It is now over the Indonesian republic midway through the twelfth revolution. It's unlikely that there'll be much business transacted during this Carnarvon pass since it only lasts a little over three minutes. At 18 hours, 30 minutes and 58 seconds after liftoff, this is Gemini Control.

END OF TAPE

This is Gemini Control at 18 hours, 50 minutes and 30 seconds after liftoff. Gemini 9 presently is over the South Central Pacific and has just passed the Carnarvon, Australia, tracking station. Command Pilot Stafford reported that on the phase adjust maneuver there were no residuals. They were all zeros on the IVI which means that the burn was done properly, and there were no errors that crept in. The spacecraft communicator at Carnarvon advised the crew that there were some flight plan updates coming up. For instance, over Antigua, they would get a go-no go for landing area 31-1; and that over Canary, the crew is scheduled to make a status report. We have a tape of this brief pass over the Carnarvon station which we will play for you now.

CRO Carnarvon has ac aid contact.

HOU FLT Roger, Carnarvon.

CRO All systems go on Gemini.

HOU FLT Roger.

CRO Telemetry's on on the ATDA. All Systems go.

HOU FLT Roger.

CRO Gemini 9, Carnarvon Capcom.

S/C Carnarvon, 9.

CRO Roger, how did the phase test go?

S/C All on time, and all residuals zero.

CRO Roger. Would you give me a readout on the AMU H_2O_2 pressure and temperature.

S/C OK. The temperature is holding and has been holding at about 65 degrees, and the pressure is blocked out 85 psi.

CRO Roger. I've got a flight plan update -- a short one for you when you're ready to copy.

S/C Standby one. OK, Bill, go ahead.

CRO OK. At 19 hours, 19 minutes, Antigua, rev 13 -- a go-no go for 31-1. At 19 hours, 30 minutes at Canary on rev 13 -- a crew status report.

S/C Can I have that time again at Canary for crew status.

CRO 19-30.

S/C 19 +30. Rog.

CRO OK. I've also got a star update for you.

S/C OK. Go with the star update.

CRO OK. The time -- 19:08:16, and I don't know if I can pronounce it, but I'll give it a try -- Elferez, or would you buy Elferez. It's 3.5 degrees up and 4 degrees left.

S/C That's Elferez.

CRO Elferez sounds good. 19:08:16 -- 3.5 up, 4 left.

S/C Roger.

CRO Flight, Carnarvon.

HOU FLT Go ahead.

CRO Do you want to get prop quantity readout?

HOU FLT Negative.

CRO OK. Gemini 9, Carnarvon. We're coming up on LOS in about 40 seconds.

S/C Gemini 9. Rog.

CRO Carnarvon has spacecraft telemetry LOS.

HOU FLT Roger, Carnarvon.

END OF TAPE

This is Gemini Control at 19 hours 10 minutes 30 seconds after lift-off. Gemini 9 in 7 minutes will be acquired by Grand Turk Island station of the Eastern Test Range, at which time Neil Armstrong will carry on further conversation with the crew. Some 2 minutes ago the crew was scheduled to carry out the height adjust maneuver with a 17 foot per second posigrad burn, additional maneuvers will be feed up to the crew for the second re-rendezvous in these subsequent station passes. At 19 hours 11 minutes and 8 seconds after lift-off this is Gemini Control.

END OF TAPE

CYI Canary has Gemini TM solid

This is Gemini Control, 19 hours 30 minutes and 30 seconds after lift-off. Gemini 9 is presently over the Canary Island tracking station. In fact within the past minute was acquired by that station. During the pass over the Eastern Test Range, the spacecraft communicator Neil Armstrong gave the crew a go for landing area 31 dash one. Command pilot, Stafford, reported that the height adjust maneuver had no residules, in other words there were no errors in the maneuver. Armstrong also passed up some baseball scores that the crew was interested in.

We have a tape of the Grand Turk Island and the Antiqua pass and hopefully we will have a tape of the present Canary pass at the end of the Eastern Test Range. Let's listen to that tape now.

GRAND TURK Acquisition, Grand Turk.

HOU FLIGHT Gemini 9, Houston.

ANTIQUA AOS, Antiqua.

HOU FLIGHT Gemini 9, Houston.

SPACECRAFT Hello Houston, Gemini 9, how do you read?

HOU FLIGHT Roger, Tom. Read you loud and clear, how me?

SPACECRAFT Roger, read you now loud and clear, Neil.

HOU FLIGHT O.K., could you give us a [illegible] oxide temperature, please?

SPACECRAFT Roger, 65 degrees.

HOU FLIGHT Roger, 65 degrees and I have a NSR update for you, when you are ready to copy.

SPACECRAFT Roger, standby. Ready to copy.

HOU FLIGHT Ok, GETB 1953 27, Delta-V 14.3, Burn time 25 seconds, Yaw 180, Pitch 20 down, 2 0 down, address 25, zero zero one three four (00134), address 26, 90049, address 27 zips, forward thrusters posigrade up, go ahead.

SPACECRAFT Houston, Gemini 9 you are coming in somewhat broken

SPACECRAFT on that, NSR update GETB is 19 45 27, Delta-V is 14.3, duration is 25 seconds, Yaw 180, Pitch 20 down, 2500134, 26 90049, 27 zeros, forward posigrade up.

HOU FLIGHT That's correct except I would like to correct your GETB, that's 195327, go ahead.

SPACECRAFT Roger, got 195327 GETB.

HOU FLIGHT That's right and we're using the forward thrusters here so that yall, you won't have to turn around lose radar lock and that stuff.

SPACECRAFT Fine, thank you.

HOU FLIGHT O.K., give us prop quantity please.

SPACECRAFT Roger, prop quantity is 35 percent.

HOU FLIGHT O.K., 35...and you will have a crew status report over Canary here in about 10 minutes or so, I'd like to tell you what maneuver plan is right now.

SPACECRAFT O.K.

HOU FLIGHT O.K., After NSR, you'll have about an hour and five minutes before TPI and you'll be hitting TPI just about sun-rise and the rest of the maneuver from TPI on in will be in daylight.

SPACECRAFT Roger.

HOU FLIGHT And we're talking about seeing whether we can get the lights on for you before TPI for a backup.

SPACECRAFT How's the power going on the ATDA, is it getting pretty low?

HOU FLIGHT Well, we don't have any too much in those squib batteries. How'd your height maneuver come out?

SPACECRAFT All residules were zero, we had one tenth of that at 81.

HOU FLIGHT Very good.

SPACECRAFT We're going to round out a 180.

HOU FLIGHT O.K., we'd like to advise you are go for 31 dash one.

SPACECRAFT Roger, 31 dash one. How are things in Houston this morning?

HOU FLIGHT We're busy as beavers down here.

SPACECRAFT I can imagine. You guys keep some terrible hours down there.

HOU FLIGHT Yea, you do too. The Astroslost last night to Pittsburgh 7 to 2.

SPACECRAFT How did the Cubs do?

HOU FLIGHT Standby. Cubs lost 8 to 6 to Cincinnati.

SPACECRAFT Well, I'm a double loser.

HOU FLIGHT You've got to expect a few loses. We've just been talking to Dave Scott and Jim McDivitt at some length, they've been climbing around a shroud out at Douglas for the last few hours and they advised the outside is no problem, the inside may turn out to be a problem...there is quite a bit of sharp edges and things on the inside, cotter keys and one thing or another.

SPACECRAFT Roger.

HOU FLIGHT Did you...did you happen to just punch start comp or change modes or something in the computer?

SPACECRAFT Yeah, I checked out my load at 25, 6, and seven.

HOU FLIGHT O.K., Big Brother is watching down here.

SPACECRAFT — Roger, Neil. Looks like our computer is cleared up completely. This is only about the first day after after....just about NSR when we ran into this problem and late yesterday evening everything looked real good.

HOU FLIGHT — O.K., Tom, it looks/all ok on the ground to us too.

SPACECRAFT — O.K., I don't know what that glitch was. Also we changed/cords and I have change utility cords where I've got my camera and optical sight going/O.K. over here .

HOU FLIGHT — Roger, I understand. Do you have...you don't have the radar on yet do you?

SPACECRAFT — No, I don't. Do you want me to turn it on?

HOU FLIGHT — Standby. Yeah, we'd like to have you turn it on and see if you can get a lock and maybe you can report a range reading over the Canarys and help flight a little bit here.

SPACECRAFT — Roger, we've got it at standby.

GRAND TURK — Hello, this is Grand Turk.

HOU FLIGHT — We're not going to have much track after NSR to help you out with. Houston is about to have LOS at Antiqua.

SPACECRAFT — Roger.

CYI — Canary has Gemini ac nid contact.

HOU FLIGHT — Roger, Canary.

HOU FLIGHT — Carnarvon, send us a contingencybravo Gemini, when you get acquisition. Canary, I mean.

CYI — Roger, Bravo for contigency. Canary has Gemini TM solid.

HOU FLIGHT	Roger.
CYI	We have C-band track, Flight.
HOU FLIGHT	Roger.
CYI	He has lock on.
HOU FLIGHT	Roger.
CYI	Gemini is "GO", Flight.
HOU FLIGHT	Roger, standby to copy a maneuver.
CYI	Roger, standing by.
HOU FLIGHT	GET burn 19 plus 54 plus 24, Delta-V 14.4, Burn time 0 plus 25, Yaw 180, Pitch 38 down, Core 25. 00114, Core 26, 00089, Core 27, all zips, thrusters forward, posigrade up, coelliptic update.
CYI	Roger, that GETV was 195424, Delta-V 14.4, Delta-T 0 plus 25, Yaw 180, Pitch 38 down, core 25 00114, core 26, 00089, 27 all zips, forward posigrade up, co-elliptic.
HOU FLIGHT	That's affirmative. Gemini 9.....(pause)
CYI	Zero plus 25, yaw, 180, pitch 38 down, address 25 00114, address 26, 0089, address 27 all zeros, thrusters forward , maneuver posigrade and up, co-elliptic, did you copy?
SPACECRAFT	Roger, NSR update, GETB is 195424, 14.4, 25 seconds burn time, yaw 180, pitch 38 down, 25 is 00114, 26 is 00089, 27 all zeros, forward thrusters, posigrade up.
CYI	That's affirmative Gemini 9.

END OF TAPE

S/C — Canary we're now at 83.8 miles.

CYI — Roger, copy.

CYI — Gemini 9 we're standing by for your food report.

S/C — Roger, we have consumed 4½ meals, and 110 ounces of water.

CYI — Roger 110 ounces....Flight, Canary, do you want to break this down into specific meals on this foodreport?

MC — Negative on that, but we would like a sleep report.

CYI — Roger...Gemini 9 could you also give me a sleep report.

S/C — .....on 8 hours of dozing....

CYI — Roger, copy....Flight, Canary.

MC — Go ahead.

CYI — Okay he gave me a radar range of 83.8 miles, and also issuing a fuel cell H_2 tank pressure of 258 the heater could be turned off now, but you have that in R.

MC — Fuel cell what?

CYI — Hydrogen tank pressure.

MC — And what was it, 2, what?

CYI — ...258....

MC — Roger

S/C — Canary we're 82.3 miles with a range rate of 69 feet per second.

CYI	Roger copy.
CYI	Did you get that last range rate, Flight?
MC	We copied.
CYI	Okay.
MC	ECOM'S satisfied with that fuel cell pressure.
CYI	O ay, very good.
MC	Canary send us another OBC.
CYI	Roger....Canary has C-Band LOS.
MC	Kano go remote.
KNO	Roger, power remote.....

END OF TAPE

This is Gemini Control at 19 hours, 50 minutes and 30 seconds after liftoff. Gemini 9 spacecraft is presently crossing the Arabian peninsula and will shortly cross into the -- over the Indian Ocean. There have been no further voice contacts with the crew since the pass over the Canary Islands tracking station. The spacecraft will be acquired by the Carnarvon, Australia, tracking station within the next 15 minutes. At 19 hours, 51 minutes and three seconds after liftoff, this is Gemini Control

END OF TAPE

This is Gemini Control 20 hours, 10 minutes and 30 seconds after liftoff. At the present time, Gemini 9 is over the Carnarvon, Australia, tracking station, and the crew is in conversation with the spacecraft communicator at that station. The pass over the station will last some eight minutes and 47 seconds. The crew has also reported the results of the coelliptic maneuver, and they've also reported that 32 percent of the onboard OAMS propellant are remaining. We have the first portion of the tape of the Carnarvon pass currently underway, which we will play for you now.

CRO Carnarvon has ac aid contact.

HOU FLT Roger.

CRO Gemini telemetry's solid.

HOU FLT Roger.

CRO All systems go.

HOU FLT Roger.

CRO Carnarvon has ATDA telemetry solid.

HOU FLT Roger.

CRO Gemini 9, Carnarvon Capcom.

S/C Carnarvon .....

CRO Roger. Would you turn the tape recorder power circuit breaker off.

S/C Turn off.

CRO Would you verify that the telemetry standby control switch is off.

S/C Off. It's off.

CRO Roger. Could you give us a prop quantity readout.

S/C Roger. Thirty-two percent.

CRO Roger. How'd the NSR burn go?

S/C On time at 80 was 081 -- was 01 and 82 was about 02.

CRO Roger. I've got a general phase backup for you when you're ready to copy.

S/C Standby. OK, go.

CRO GETB -- 20:55:28. EPNSR -- 01:01:04. Delta V -- 16.7. Burn time -- 0 +21. Core 25 -- 90147. Core 26 -- 00075. Core 27 -- 00020. 16.5 forward, 0.3 up, and 2.5 right. Range -- 16.3 nautical miles. Range rate -- 64 feet per second. Azimuth -- 178.5 right, elevation -- 27.4 down. Range and range rate are two minutes and ten seconds prior to TPI.

S/C This is Gemini 9. Roger. We got the backup. Thank you.

CRO Flight, Carnarvon.

HOU FLT Go ahead.

CRO OK. I turned off the tape dump and also the standby transmitter.

HOU FLT OK. Are you showing radar lock?

CRO That's affirm.

HOU FLT Roger. Could we ask him for a range rating, please.

CRO Roger. Will you give me range and range rate.

HOU FLT Do you read it on the ground?

CRO We're getting it on the computer.

S/C Right now we're 54.3 miles.

CRO Roger.

S/C At 86 feet per second.

CRO Rog.

HOU FLT Copy. OK. I guess you'd better turn his ac lights on.

CRO Roger. Just did, Flight. The ac lights are on, 9.

S/C Roger.

HOU FLT Carnarvon, Flight.

CRO Go ahead, Flight.

HOU FLT Send us a Gemini LOS main.

CRO Roger.

HOU FLT Carnarvon, Flight.

CRO Go ahead.

HOU FLT Send us an OBC every data point, please.

CRO Roger. Will do. Flight, Carnarvon.

HOU FLT Go ahead, Carnarvon.

CRO OK. The last range we got out of the computer was 323 KC; and the range rate -- 79.7.

HOU FLT OK.

CRO Gemini 9, Carnarvon. We're one minute to LOS.

S/C Roger. Carnarvon, Gemini 9 is at 71.9 miles 88 .....

END OF TAPE

This is Gemini Control at 20 hours 30 minutes and 30 seconds after lift-off. Gemini 9 at the present time is over the South Central Pacific, nearing the end of the 13th revolution. Some 20 minutes from now the Corpus Christi station on the state side series of stations in the space flight network will acquire Gemini 9. Some 19 minutes from now, just prior to the acqusition by the Texas station. The terminal phase initiation maneuver for the 3rd re-rendezvous is scheduled at 20 hours 31 minutes and 6 seconds after lift-off, this is Gemini Control.

END OF TAPE

This is Gemini Control, 21 hours, and zero minutes and 33 seconds after lift-off. Gemini 9 is presently over the stations of the Eastern Test Range and will be acquired by the Canary Islands tracking station in approximately three minutes. During this state side pass currently underway, Command pilot Stafford commented that the range to the target in his first report was approximately 21 miles and they were approximately seven miles above the target. The second report was 18 miles closing and the last report that we heard he was 17.72 miles from the target. We have the first portion of the state side pass on tape. Let's see if that's ready to roll now.

HOU	Texas go remote. Texas go remote...Texas go remote.
TEX	Texas is remote.
HOU FLIGHT	Gemini 9, Houston standing by.
GRAND TURK	Acquisition Grand Turk.
SPACECRAFT	From the rendezvous from above, we've reflected moon light on the target.
HOU FLIGHT	This is Houston, no answer is required....remember to turn ac lights off.
SPACECRAFT	Roger, Neil we have no ac lights this boy has got him in reflected moon light at 20 miles.
HOU FLIGHT	Rog, understand.
SPACECRAFT	Houston, Gemini 9, elevation 200.9 reads 21.04.
HOU FLIGHT	Houston, roger.
ANT	AOS Antiqua.
SPACECRAFT	Houston, elevation at 201.7 reads 19.92 reads rates 70.
HOU FLIGHT	Houston, roger.

SPACECRAFT Star been reflected sun light into sun rise now. Houston, Gemini 9, elevation 203.0 18.82 miles 66 feet per second.

HOU FLIGHT Houston, roger. Houston has commanded ac lights off.

SPACECRAFT In the clouds. Houston, Gemini 9 elevation 204.2 reads 17.72.

HOU FLIGHT Houston, roger.

SPACECRAFT Houston, close loop is 20 forward, two left, three down.

HOU FLIGHT Houston, got it.

SPACECRAFT ....Doesn't look good from here at this time. Houston, Gemini 9, Point D is 206.0 , 16.60 miles range rate 33.

HOU FLIGHT Houston, roger.

SPACECRAFT Houston, this is 9 and we're taking a backup solution staying close loop.

HOU FLIGHT Roger, understand.

SPACECRAFT Backup reads 617 forward and three up. 17 forward and three up.

HOU FLIGHT Houston, roger.

GRAND TURK LOS, Grand Turk.

HOU FLIGHT Houston approaching LOS.

ANT LOS, Antiqua.

END OF TAPE

This is Gemini Control at 21 hours, 10 minutes and 30 seconds after liftoff. Gemini 9 at the present time is over the Canary Island tracking station and in his comments to the spacecraft communicator at Canary, Command Pilot Stafford commented that the onboard radar was doing beautifully in the measurements of the distance to the target, and at last report he was 10.21 miles from the target and closing. We have the beginning portion of the tape of this pass, so let's roll it now.

CYI Canary has ac aid contact. Canary has Gemini TM solid. Target TM contact.

HOU FLT Roger.

CYI We have C-band track, Flight.

HOU FLT Roger.

CYI All systems look good, Flight.

HOU FLT Roger.

CYI We're indicating a range .....

S/C This is Gemini 9 transmitting in the blind. We will align the platform after five minutes and have 30 percent fuel .....

HOU FLT Give him a roger on that.

CYI Roger, 9, Canary Capcom. Roger. We copy.

S/C Roger. We'll align the platform and close loop this ..... We used the backup solution. We have 30 percent fuel remaining.

CYI Roger. Copy.

S/C And we cannot see him against the sunlit ocean down below even though we're down to 12 miles.

CYI Roger.

S/C Radar is doing beautifully.

CYI Did you copy all that, Flight?

HOU FLT Copy.

S/C Canary, this is Gemini 9. Our last point elevation -- 215.6. Range -- 11.7 miles. Range rate -- 78.

CYI Roger.

S/C Canary, this is Gemini 9. We're aligning no angle, no range rate. We're at 10.21 miles.

CYI Roger.

S/C Canary, this is Gemini 9. We're aligning, and I do not get any range or range rate out of the computer at this time.

CYI Roger, Gemini 9.

HOU FLT We copy.

S/C Houston, Gemini 9. Or Canary, Gemini 9. Elevation -- 227.2 -- 7.18 miles.

CYI Roger.

S/C And we're passing over the sand dunes in the Sahara, also some of the lava flows here and are looking straight down at him, and I still can't see him.

CYI Roger, 9. Houston Flight, Canary Capcom.

HOU FLT Go ahead.

CYI At TX time, we're at DL 12. The time and mode is not coming up on the ground. As we cut of the 12 18 here.

HOU FLT The time and mode is not counting up?

CYI That's affirmative.

HOU FLT What mode is he in, Canary?

CYI He's in rendezvous.

HOU FLT Send us another summary, Canary.

CYI Which one, Flight?

HOU FLT Gemini. OBC.

CYI OBC. Roger.

HOU FLT Canary, send us another computer OBC.

CYI Roger. Canary .....LOS .....

HOU FLT Kano brought him up. Roger, Canary. How'd he look?

CYI Systems look great right near the end there. He went into search and looked like he was looking around quite a bit. .....

HOU FLT Kano, go remote.

KNO Kano remote.

S/C Gemini 9. Canary, Gemini 9. Elevation 233.9. 5.79 miles. 51 feet per second.

HOU FLT Houston standing by. Houston standing by.

S/C Roger, Houston. We're down to a little over three miles looking straight down into Sahara Desert. There's no visual contact. We're locked on -- following on radar.

HOU FLT Understand.

S/C Houston, elevation is 238.4. Range 5.06. Range rate 29.

HOU FLT Houston, roger.

S/C Houston, this is Gemini 9. Elevation -- ....4.0. Range -- 4.31. Range rate -- 44.

HOU FLT Houston, rog. Houston's one minute to LOS.

S/C Rog.

HOU FLT OK, 9, Houston. Advise your fuel cut off as five percent on the gauge.

S/C Down to three miles and still no visual contact .....

HOU FLT Houston, roger.

S/C Houston, ... finally have a little spot down there .....

HOU FLT Houston, roger.

END OF TAPE

This is Gemini Con rol at 21 hours, 40 minutes and 30 seconds after lift-off. Gemini 9 is within a few seconds of acquisition by the Carnarvon Australia tracking station at this time they have a fuel purge...fuel cell purge scheduled, and they should be beginning the preparation for extravehicular activity and having a meal. Meanwhile the U.S. weather bureau space flight meterology group here in Mission Control said that weather conditions remain satisfactory in the areas of prime concern for continutation of the flight of Gemini 9 during the next two days and probably through the remainder of the mission. The mid-Pacific landing zone centered about 300 miles north east of Honolulu, has partly cloudy skys, winds out of the southeast as you were south west about 12 knots and seas at four feet. In the western Pacific landing zone about 700 miles south west of Toyoko is mostly cloudy skys with scattered showers. In the northern portion of the zone the winds are northwestern at 10 to 15 knots and seas at four feet. In the southern portion , they are 20 to 20 knot winds and seas ranging up to eight feet. In the primary landing zone in the western Atlantic, centered about 800 miles east of Miami partly cloudy skys with a few widely scattered showers, winds are out of the east at 15 to 18 knots and seas range from four to five feet. Let's see if we can't cut in on the Carnarvon pass at this time.

SPACECRAFT What did you say Carnarvon? We arein position with them . We've got about 18 percent of fuel remaining.

CRO T Roger.

SPACECRAFT And...what's our status now on EVA?

CRO Standby one.

HOU FLIGHT Carnarvon, Houston Flight.

HOU FLIGHT I didn't copy that first, say again.

CRO He said that his status on fuel was 18 per cent and he would like to know what his EVA status is.

SPACECRAFT Carnarvon, Gemini 9

HOU FLIGHT Is he station keeping?

CRO Standby one, go ahead 9.

SPACECRAFT It's going to take us a lot of fuel to stay here for EVA for three hours.

CRO Roger, understand. Standby one and I'll talk to flight. Flight,

CRO Flight Carnarvon

HOU Go ahead.

CRO Okay. He has got about 18 per cent remaining and to station keep for any length of time is going to use a lot of fuel up, I guess and he must know about what you feel about EVA.

HOU Tell him to stay with it until we get to the states. We will brief him fully. Go ahead with his EVA prep. Okay, that is it for now.

CRO Roger. Gemini 9. We would like for you to go ahead and station keep until we get to the states and then we will brief you over the states. Go ahead and continue with the EVA preparation.

S/C (Garbled)

HOU Go ahead with his eat period, Carnarvon.

CRO Is that eat period, Flight?

HOU Eat period, that is correct.

CRO Gemini 9, Carnarvon.

Did you get a chance to purge your fuel cells?

S/C We haven't had a chance to do anything for a little bit here.

CRO Okay, well we will stand by here if you want to start the purge.

S/C Okay. I will purge.

CRO Flight, Carnarvon.

Houston Flight, Carnarvon.

HOU Go ahead, Carnarvon.

CRO The L-Bands are still on, do you want them to turn it off?

HOU Affirmative, Carnarvon.

CRO Okay. Gemini 9, Carnarvon. Would you turn off the L-Band radar?

S/C Roger. You talking about the L-Band?

CRO That is affirmative.

S/C It is off.

CRO Flight, Carnarvon.

HOU Go ahead, Carnarvon.

CRO The L-Band radar is off and command L Beacon off.

HOU Roger.

CRO They turned on the C-Band beacon on the ATDA.

HOU Roger.

HOU Carnarvon, Houston Flight

CRO Go ahead Flight.

S/C] Carnarvon, Gemini 9. Are we still in contact?

CRO That is affirmative.

S/C It appears I have got about 17 percent fuel.

CRO Roger.

S/C And we are going to go through another one in station keeping during three hours. Would you pass that on to Flight?

HOU We copied.

CRO Roger.

S/C Roger. Now that we look at the problem it is going to take quite a bit of fuel to station keep for three hours due to the EVA.

CRO Roger, we understand.

S/C I think the loop for our preparation has been abbreviated.

CRO Roger.

HOU Carnarvon, Houston Flight.

CRO Go ahead, Flight.

HOU Tell him to go ahead with the eat period and try to minimize the fuel consumption. We are looking at the profile now, to see what we can do.

CRO Gemini 9, Carnarvon, we would like for you to go ahead with your eat period and minimize your usage of fuel and we will talk to you over the states.

CRO Flight, Carnarvon.

HOU Go ahead, Carnarvon.

CRO Okay, we have completed the purge on section one, starting on section two.

HOU Yeah, okay. Purge on section one look okay?

CRO That is affirm.

HOU Okay.

It is pretty quite over this pass over Carnarvon. There is one minute and 47 seconds remaining in this pass. Perhaps the crew again will talk to the spacecraft communicator. We will stand by and listen.

CRO The purge is completed, Flight.

HOU Roger.

CRO Gemini 9, Carnarvon.

S/C Go ahead, Carnarvon.

CRO Would you place your quantity read to ECSO2?

S/C Fuel cell 02. Fuel cell H2.

CRO ...to off and we are standing by.

Spacecraft Gemini 9 and the target vehicle have just moved out of the acquisition range of the Carnarvon station. Spacecraft communicator at Carnarvon said both vehicles looked very good. At 21 hours 51 minutes and 45 seconds, this is Gemini Control.

END OF TAPE

Good Morning. This is Gemini Control.....this is.....this is Gemini Control forgive the delay, no new contact with the crew, we're presently showing 22 hours into the flight. No new contact since Carnarvon, the spacecraft now off the east coast of Australia. The crew is eating breakfast, they did a good day's work before breakfast this morning preforming a very involved rendezvous from above, which was successful although Tom Stafford had a good deal of trouble spotting the target vehicle against a sun-lit ocean. We expect a rather extensive briefing on our EVA plans as the spacecraft moves across the states, these plans are under going final review at presently in a Staff Support room here in the Control Center, and that is the only additional activity we show on our flight plan, presently. Meanwhile the Gemini 9 is maintaining a separation distance of approximately 100 feet from the target vehicle in this swing across the Pacific while the crew does enjoy breakfast. This is Gemini Control, Houston.

END OF TAPE

This is Gemini Control Houston. We were in contact with the spacecraft a few minutes over, a few minutes ago over Canton Island and the status of the pilots was asked by Neil Armstrong. Tom Stafford gave us a summary that went something like this"we're pretty well bushed" and he also raised for the first time some question in his own mind, having talked it over he said with Gene Cernan, he questioned whether, and when EVA should be done. It is his suggestion that perhaps the EVA event should wait till tomorrow morning, he realizes the alternatives are that where some experiments could be done, and he qualified it by saying we have a specific plan for the ATDA, suggesting the release of the shroud, and suggesting go ahead with some docking practice. We questioned the need for EVA, as presently planned for 25 hours and 10 minutes. There has been considerable work done during the night on a plan for EVA which will discussed at length over the states in some 10 to 12 minutes from now. Meanwhile the Surgeon reports that the crew got approximately 8 hours sleep last night, it was described as dozing sleep, not at all solid. They both sound a little tired this morning. They have been working hard to carry out this rendezvous from above. The crew has also had total of 110 ounces of water we can't break that down per man but we would guess it would divide approximately. We have this brief tape conversation with the Canton Island station, we'll play it for you now.

MC Canton go remote.

CTN Canton remote.

MC Go remote.

S/C Roger.

HOU Gemini 9 this is Houston.

S/C Roger, Houston read you.

Houston, Gemini 9.

HOU Roger we're reading you load with a little

HOU garbled. Advise we'd like to look at your station keeping here and the over states to see what your fuel consumption down, I is 'd like to have evalution of how you think you'll be able to do station keeping and EVA at the same time.

S/C Okay, we're going to talk it over, right now we're pretty bushed.

(garbled)

We've got I estimate 16 to 17 percent fuel remaining and this with the experiment we have planned, and everything else, we've talked it over and we think it might be better for both of us to knock it off for a while, do some experiments and try the EVA this morning, unless you have a specific plan to do some good with it, I don't feel we'd gain a whole lot, over.

MC Roger. Tom I followed that. We're probably about 2 minutes to LOS. talking to you here at the station we have acquistion at 22, 23,

S/C Roger, 22, 23.

END OF TAPE

This is Gemini Control Houston at 22 hours, 26 minutes into the flight. Within the last few minutes in conversation with the crew the decision has been reached to postpone extravehicular activity until at least tomorrow. I say again, a decision has been reached to postpone the EVA activity. The crew reaction of this was a statement from Tom Stafford -- "We agree very heartily with that recommendation." Additional work is a foot however, in an attempt to shake loose the shroud still enclosing the target docking adapter ring. And this activity will go on during this pass. The spacecraft/presently just crossing the east coast of Mexico in the Gulf. The crew is standing by in order to get photographs of this operation. The plan is this -- we will activate Ring A of the ATDA, that is the reaction control system ring, which still has a full 35 pounds of fuel available in it, we will cycle the rigidizing-non-rigidizing sequence, that is move the docking adapter cone in and out and at the same time, we will pitch up and down the ATDA itself, in an attempt obviously to shake the clam shells loose, they are still being held together by at least two wire bundles, perhaps two more inside. But we know there are two connecting externally. As near as can be observed, those are the only two bundles connecting. The bolts -- stainless steel belly band -- about the outside of the adapter clam shells have been blown and are free. The status of the ATDA in addition to Ring A, and its fuel, which I have given you, the squib batteries which activate the pyro circuits, an independent battery system from the main system -- the squib battery still contains three amps or 20% of the power. The main battery system still has 621 amps, this is approximately 60% of the power remaining since take off. Commands are

going up to the ATDA at this time. The command to the -- the primary execute command to the ATDA has been sent, and a signal verifying receipt has been received. The Ring A squib buss has been on. We don't have an exact position on where Gemini 9 is, we would estimate it is 100 to 150 feet from the ATDA. Additional commands going up to the Agena. Stafford has come in several times to report that the same rates that he has observed still obtained with the ATDA. But this is understandable, because I don't think the pitching motion has been introduced as yet. Now the RCS Ring A has been activated and Stafford confirms visually that this stopped the rates abruptly. The slight roll rate which the ATDA had been maintaining. He says the rates have been pretty well damped. Stafford says the ATDA is rolling to the left about two degrees per second. The expectation is this series of maneuvers, which will continue out to into the middle of the Atlantic Ocean, may very well deplete the fuel supply in Ring A, but the feeling is, that it will be well worth the effort. We are now preparing to send the rigidized-unrigidized command. A rigidized command has been sent and a message of acceptance has been received. And Tom says, they're really tossing the thruster fuel out now, while this rigidizing-unrigidizing sequence goes on. The thruster fuel of course, coming from the target vehicle. All the while, Stafford and Cernan are taking pictures of this activity. It should be a remarkable photographic record. We're going to the unrigidized sequence. Tom Stafford reports he's already expended one can of film. He wants to reload. We have unrigidized the cone, the signal has gone up -- an acceptance signal has come back. The Flight Director has ordered that we return the ATDA to a low rate load. Tom Stafford has remarked several times of the unusual thruster activity he's observing. Stafford estimates his present onboard propellant

quantity reading is 12 to 13%. He says the target vehicle thrusters are still firing very rapidly and he has asked the flight director and should he maintain a station keeping position with the target vehicle for another rev that decision has been postponed for about 10 minutes, until we are within the Canary area of acquisition. We have lost telemetry contact with the target vehicle right now which is out some 500-800 miles east of Bermuda. The preliminary indication is that this series of maneuvers introduced across the states apparently was without effect. We've heard nothing from the crew. Our TM shows also that we did not have much success. The clam shells apparently are still around the docking cone.

To recap this rather extraordinary active pass -- a decision was reached and passed to the crew at the beginning of the pass that any EVA considerations on the EVA which had been scheduled for about 25 hours and 10 minutes into the flight would be postponed until at least tomorrow morning. The one possible fact that could have changed that decision would have been the success of jettisoning these panels, shaking them loose somehow. And, in an attempt to to that a series of bucking pitching up and down motions were introduced into the ATDA by going to Ring A and at the same time, several rigidizing and unrigidizing commands were sent to the docking cone, apparently, without success. We are now prepared to play the tape as we moved across the states, the communicator from the spacecraft is Tom Stafford. You will also hear some discussion from our Agena console operator and I believe Gene Kranz the flight director, also get on the loop from time to time. Here's that tape.

END OF TAPE

Guaymas go remote

HOU Gemini 9, Houston

S/C Gemini 9 Houston, GO

HOU Roger. Its the ground recommendation that we postpone the EVA activity till the third day. Would you agree with that?

S/C We recommend very heartily with that recommendation.

HOU Roger, good. The next thing we'd like to do is fire up the ATDA A-ring during this stateside pass and cycle the rates and the cone and would you be in a position to observe and photograph that activity?

S/C Roger. We'll hit it on this stateside pass and I'm into the sunrise right now and the cameras all set up and we're able to follow the whole works.

HOU All right. We'd like to have word from you when you think the lighting will be satisfactory and your in a good position to begin that activity.

S/C Okay.

CYI Canary Cap Com AFD.

HOU This is AFD Canary go ahead.

CYI If you follow, we're going to do that sequence and then we'll - also going to do sequence 4 and 3.

HOU Roger, copy. Your going to - okay we've got it. Rigidize and unrigidize.

CYI Roger. Here we go. Just like Gang Busters.

HOU Okay, very good.

CYI We'll keep you briefed.

HOU Roger, Roger.

S/C Houston, this is Gemini niner.

HOU Roger, go ahead.

S/C Were you able to find out Neil whether theres anything we could do EVA to the ATDA that might afford us a docking?

HOU We've looked into it rather extensively and we had some possible actions. However, we did not have a very high confidence level in those actions.

S/C Now, Tom and I discussed this whole thing and I guess the real - the little real-time evaluation of what we've done in the past 20 hours or so and what we've got to do leads us to believe probably that the third day EVA might be better.

HOU Roger, we're in agreement with that at this point. We're continuing the flight planning activity in that direction.

S/C Be better.

HOU Texas go remote.
Guaymas go local

TEX Texas remote

GYM Guaymas local

HOU Nine we're over about the middle of the Texas pass now, we're standing by for your recommendation.

S/C We're set to go to photograph. Go ahead and turn on the RCS when you want.

HOU Okay, we'll let you know as we do each action here. Nine, Houston standing by here, we're waiting for telemetry from the ATDA. We should have it squared away in a second.

S/C Roger.

HOU Select in RCSA now.

S/C Roger. We're taking pictures. (garbled) same drift rates.

HOU Okay. He hasn't sent, he's going through warmup now. Thirty seconds ago.

Okay theres secondary TSS. Execute.

S/C .....jar at the same rates Neil.

HOU Okay. We're still about a few seconds away I guess. Hope we don't run you out of film. RCS power on.

S/C Oh, yea, that stopped it right away. Tight as a rock.

HOU (garbled) ....as a rock.

S/C Hold the time. Now it's stopped.

HOU Roger.

S/C Looks like its pretty well damped.

HOU Roger

S/C Right away it starts drifting now. You turn it on and off, now its started to roll to the left. I'd estimate about two degrees per second maybe three.

HOU Roger.

S/C Give us a mark when you turn it on.

HOU Okay.

Okay, going to high rate.

HOU There's low rate.

S/C I didn't see it fire there at all.

HOU Okay.

S/C Still at low rate Neil.

HOU Okay. High rate. Mark.

S/C There it goes. It's really kicking out the RCS fuel.

HOU Roger. Okay we're going to cycle the nose cone now.

S/C Okay. Let us know when you cycle it, Neil.

HOU OK, we're coming up on rigidize.

S/C The thrusters are still continuing to fire quite full. It's just about regular reentry Neil.

HOU Okay. Rigidize.

S/C Boy,their really tossing the thruster fuel out now. Those thrusters are firing just about (garbled) a pretty good duty cycle.

HOU We're with you.

S/C They are still firing.

HOU Okay, we're going to unrigidize now.

S/C Standby to reload the film.

HOU OK.

S/C Go ahead. Hold off we're right in the sun now.

HOU OK, we're going to loose a carrier here pretty soon.

HOU Bermuda go remote.

HOU Bermuda go remote.

BDA Bermuda remote.

S/C Okay, go ahead now.

HOU OK.

S/C Look at those thrusters. Those thrusters are really going through a rapid duty cycle. At least a 50 - 50.

HOU Going to low rate now.

S/C You should be on RCS fuel before long.

HOU Okay, we're getting TM dropout now.

S/C Do you want to set us up for a separation maneuver from it?

HOU Standby.

S/C Do you want us to station keep for another rev? I've got about 12 percent fuel.

HOU Ok, we're going to be at Canary in a few minutes. We'll give you that dope there. What is your propellant quantity now?

S/C Roger. Twelve percent (12%). Twelve or thirteen percent.

HOU Ok, Tom.

S/C Man those RCS thrusters are still firing real rapidly.

HOU OK. We lost TM but we're going ahead and send an RCS off.

S/C Roger.

HOU Tell us if you see it stop firing.

S/C It stopped.

HOU OK.
Are you following Canary?

CYI Roger. RCS is off.

HOU Roger.

HOU Canary Cap Com AFD

CYI Go, AFD

HOU Ok, we'd like acq LOS main from Gemini and we'll get you the ATDA stuff as soon as we can get it squared away.

CYI Roger.

HOU Okay, we're approaching LOS at Bermuda, Tom. Canary will pick you up in three or four minutes.

S/C Roger.

(Pause)

This is Gemini Control Houston. Over the Canary's the crew was advised to perform a three foot per second retro-burn. And, please advise us of the time of the burn. They have not yet completed the burn. When given that instruction, Stafford said "we're about three feet away from the monster and we're taking some more pictures." The crew is also advised when performing this three foot per second retro-burn to please bring up the L-band radar on the ATDA and give it a little service check as they move away from the beast. The source pressure on ring-A in the ATDA (the target docking adapter), is running at 2100, which is a good solid value. Stafford also advised that they had aboard plenty of documentary evidence of what precisely caused this failure. He did not elaborate on that remark. Our best estimate is that approximately 50 pounds of useable propellant remain on Gemini 9. This is somewhat less than the flight plan showed. We should have at this point in time just a few pounds less, but its probably enough to carry off an extravehicular activity tomorrow. We have now the tape conversation with the Canary Station and we'll play

it for you at this time.

END OF TAPE.

HOU FLT Canary Cape Com, Houston Flight

CYI Go ahead, Flight. We have TM solid.

HOU FLT Ok, why don't you advise the crew to do a three foot per second retrograde burn at their convenience and advise us of the time at which they started their burn.

CYI Roger. Three foot per second retrograde at their convenience and give us the time.

HOU FLT Roger

CYI All system are go, Flight.

CYI Gemini 9, Canary Cap Com

S/C Roger, Canary. We are about three feet away from the monster taking some pictures, go ahead.

CYI Ok, we would like for you to do a three feet per second retrograde maneuver at your convenience and give us the time.

S/C Roger, we are still snapping pictures.

CYI Ok, we are standing by. All systems look good.

S/C .....one we are taking a picture of.

CYI Flight, Canary. The RCS source pressure on the target vehicle TB 16 is holding steady at 2100.

HOU FLT Roger.

Canary Cap Com, Houston Flight.

CYI Go ahead, Flight.

HOU FLT We use send Channel 22 SEP to the ATDA and then go through Sequence 19 Alpha to turn the L-Band beacon on.

CYI — Twenty-two set. What is that function, flight?

HOU FLT — L-band enable.

CYI — L-band enable within sequence 19 Alpha, Roger.

HOU FLT — You can tell the crew we are turning the L-band on for their separation.

CYI — Roger.

S/C — Canary, this is 9. We have fully documentary evidence on what caused the failure.

CYI — Say again, 9.

S/C — Ah roger, we are going to have plenty of documentary evidence as to what caused the failure.

CYI — Roger, 9. We are in the process right now of turning the L-band on for you.

S/C — Good.

HOU FLT — Ok, and you can advise them to conserve the fuel from here on out. We'll update them further in the flight plan.

CYI — Roger.
Gemini 9, we would like for you to conserve as much fuel as you can from here on out and we'll update you later on the flight plan.

S/C — Ok. We are slowly drifting away from it and after we get squared away and finish our picture I won't use anymore fuel. We'll go ahead and do the three foot per second retrograde.

CYI — Roger, Copy.
We've completed those commands, Flight.

HOU FLT — Ok, fine.

CYI Houston Flight, Canary. We've got two minutes to LOS. Do you want this burn done before LOS?

HOU FLT If it is convenient for him. Just so we get the time, you advised him of that?

CYI That's affirmative.

Canaries has LOS, both vehicles. All systems Go.

HOU FLT Roger, Canaries

END OF TAPE

This is Gemini Control Houston. 22 hours, 58 minutes into the flight. Three to four minutes from now over the Tananarive station we now estimate that Stafford and Cernan will perform the three foot per second retrograde burn, and this burn will have the effect of lowering the Gemini perigee about one and a half miles and will place the spacecraft about eight and a half miles ahead of the target vehicle. It will gradually move away from the target vehicle at the rate of some eight to eight and a half miles per rev. It is a distinct possibility that this is the last time that the target vehicle will be seen in view of the low fuel budget. We have this brief tape conversation between the crew and remoted through the Kano station. We'll play it for you now.

HOU — Gemini 9, Houston standing by.

S/C — Roger. We're getting squared away for our three foot per second retrograde burn. We've still got it.. in sight. Exposed a lot of film, and we'll....all over Carnarvon or Tananarive.

HOU — Roger. We're standing by. All I need is the time of the and the velocity of the burn.

S/C — Roger.

END OF TAPE

This is Gemini Control Houston. At 23 hours, seven minutes into the flight. A very few minutes ago, White Team capsule communicator Dick Gordon tagged up with the Gemini 9 crew via Tananarive and we were advised that the crew had performed the three foot per second separation maneuver that they'd been instructed to do some 20 minutes ago. This maneuver carries them one and a half miles below the target vehicle, that's one and a half nautical miles in perigee at least, and moves them out in front of the target vehicle some eight to eight and a half miles. The crew also was instructed that we want to perform a rather extensive accelerometer bias check on the next sweep across the United States. The tape from Tananarive has a lot of noise on it this morning but we'll play it for you at this time.

	Tananarive go remote.
TAN	Tananarive remote.
S/C	....this is Gemini 9.
HOU	Gemini 9, Houston standing by.
S/C	Roger. Gemini 9. We've just completed the three foot per second burn.....22 59 00.
HOU	Gemini 9, Houston. Did you say again the time please.
S/C	Roger. 22:59:00.
HOU	Gemini 9, Houston. Copy the separation maneuver at 22:59:00. Is that affirmative?
S/C	That is affirmative.
HOU	Roger. Was that a three foot per second retrograde?
S/C	Say again.

HOU Roger.

S/C .....to say again.

HOU Gemini 9, Houston. I understand it was a three foot per second retrograde burn. Is that affirmative?

S/C That is affirmative.

HOU Roger, Tom. Anticipate when we come across the states on the next pass that we'll do an accelerometer bias check all the way across the states. We want to take a good look at it. So you can prepare for it even before you get there and let it run all the way across.

S/C Roger, will do. From here to our pass..... rendezvous for 24 hour period to push the work load.

HOU Gemini 9, Houston. We're having a little trouble reading you. Would you say again, please?

TAN Tananarive has LOS.

END OF TAPE

This is Gemini Control Houston, 23 hours, 54 minutes into the flight. Since we last had a report, we've had contact via Carnarvon. Stafford confirmed which thrusters he'd use to make his separation maneuver. He also reports that the spacecraft radar is on but the ATDA radar is - I'm sorry the reverse of that. The spacecraft radar is not on but the ATDA radar is. The transponder on top of the ATDA is on. During the course of the flight, as perhaps to underscore some earlier comments from Stafford, the people on the ground noticed that Tom appeared to fall asleep during the course of the pass. The general plan is now to run silent as Gene Kranz has put it, for the next several revs to give the crew a chance to rest. We will however go ahead and perform an accelerometer bias check over the states during the upcoming pass. For the next several revs it looks very quite. In about two and a half hours we expect to start the first of three UHF-VHF polarization experiments. These at Hawaii and possibly Antigua. Here now is the tape conversation recorded over Carnarvon.

CRO Standing by at Carnarvon

S/C Roger.

CRO Carnarvon has telemetry showing on both vehicles. Gemini 9 Carnarvon Cap Com, we're still standing by

S/C Roger Carnarvon. We're just getting squared away here in the cockpit.

CRO Roger.

S/C Had accelerometer bias check across the states and computers all set up.

CRO Okay.

S/C Check on the thrusters.

CRO Standby.

On that three foot per second burn which thruster did you use?

S/C Roger. We used the forward firing, number 11 and 12.

CRO Roger. We copy.

Flight, Carnarvon

HOU Go ahead Carnarvon.

CRO Okay, the spacecraft radar is not on however, the ATDA is. Do you want to go ahead and turn it off or do you want to leave it like it is?

HOU Lets leave it on during this pass here until we confirm that we got positive separation. We'll probably turn it off over the states.

CRO Roger.

HOU You missed all the excitement yesterday Bill.

CRO How's that?

HOU All these good re-rendezvous.

CRO We just did all that here in the last four hours.

HOU Is that right.

CRO I guess you were sleeping.

HOU You know we may leave you out there permanently.

CRO I'm getting an accent.

HOU How's your team out there?

CRO Doing great.

CRO Carnarvon has C-band track.

HOU Roger. Thank you.

CRO Everything looks good flight.

HOU Roger, Carnarvon. Everything looks good here.

CRO Flight, Carnarvon

HOU Go ahead.

CRO Looks like the pilot might be going to sleep.

HOU Okay, thats outstanding.

CRO Roger.

Carnarvon has one minute until LOS.

HOU Roger.

CRO Carnarvon has LOS on both vehicles.

HOU Roger, Bill.

This is Gemini Control Houston. While that tape was playing the spacecraft came in contact with the west coast of the United States and this conversation has ensued.

HOU Guaymas go remote

GYM Guaymas remote.

HOU Gemini 9, Houston.

S/C Houston, Gemini 9

HOU Roger 9. We're standing by for your accelerometer check all the way across.

S/C Roger. Have address 25, 26, and 27 all zeroes.

S/C Pushing start comp.

HOU Roger. Just let it go no thrusting and we'll watch it. I have a flight plan update for you.

S/C Roger.

HOU Roger. Node ascending node rev 15 158.6 west, and your flight plan update for the next couple of revs, we're going to give you an eat period starting right now at your convenience. Give you a couple of revs of rest and we'll pick you up about the beginning of - at the end of rev 17 beginning of rev 18 over the states again.

S/C Roger. That sounds good. What time will that be?

HOU Roger, we'll pick you up at Hawaii time at the end of rev 17 is 26:52 it will be approximately 27:10, 27:15.,

S/C Sounds real good. We're going to get a little snooze here and eats for awhile.

HOU OK, while we're watching this bias check., we'd also like to brief you on a cross feed.. We want to go ahead and open the cross feed now. What this will do for us, if we open it now and balance those tanks we can close the cross feed at the beginning of EVA in the morning and we will not have to open it up again. So if we do it now, we'll be all set for the rest of the flight.

S/C Roger. Do you want to go ahead and open it at this time.

HOU Well I'll just go ahead and read the procedures to you. Quantity read switch to fuel cell 02.

S/C Roger. Fuel cell 02.

HOU Okay, Agena control bus arm switch to experiments position.

S/C Roger, bus arm to experiments.

HOU Roger, cross feed switch open.

S/C Roger, cross feed switch coming open, and we heard the thud.

HOU Okay. I understand the pyro fired, Agena control bus arm switch safe.

S/C Positioned.

HOU Ok, fuel cell 02 heater off.

S/C Fuel cell 02 heater off.

HOU Quantity reads switch to ECS02 for 20 seconds.

S/C Roger, ECS02.

HOU Nine, Houston. Quantity read switch, fuel cell H2.

S/C Fuel cell H2.

HOU Roger and you can leave it there for 20 seconds and then off.

S/C H2 coming off.

HOU Roger. Cryogauging switch to off.

S/C Roger.

HOU Tom, thats all I have right now for you and we just watched you going across. You can relax for awhile.

S/C All the facts are gone on that last rendezvous. I think we've learned a whole lot about rendezvous from those last two and also from the first ones.

HOU Yes, I think we all did on those.

S/C Yea that was quite a chore. I appreciated that last one. Everything was going real good and then.... but we came out okay on it.

HOU Okay real fine. Real glad that it happened that way.

S/C But, you talk about being busy as a left handed paper hanger trying to go optically and also RFR. That was quite a chore.

HOU Hell, thats nothing new, is it.

S/C No its just like flying the old GCA.

HOU Well it looked like a pretty good show from down here.

S/C Thank you. We used our backup initiate and which was real close to what the grounds was. The closed loop was off, we could see this .....(garbled)

HOU Understand.

S/C This being the closed loop would've thrown us in the wrong way but our delta delta R showed us exactly what we had and the grounds switching was good and so was our onboard backup. We went with that, we kept it closed loop and we used a modified first mid-course and then we took the backup . The closed loop for the

S/C final mid-course and this switching was exactly on with ours.

HOU Fine. Sounds good. At least we know how to do them now, don't we.

S/C Yes.

HOU Nine, Houston.

S/C Go ahead.

HOU Tom, just an overall look here. What we're looking at for this afternoon and after you have a couple of revs of rest, is picking up some of the expriments. The D-14's and S-11's. We can update those later for you. We'll update them in real-time for you to do them after your rest period. We're trying to get the EVA tomorrow morning as late as possible and still maintaining stateside coverage so we can give you a good 10 hour rest period tonight before EVA prep.

S/C Roger. That sounds real good. Can you give us a good accurate hack on our propellant quantity from the ground readout. I'm showing about 11 percent here.

HOU Standby. You have approximately 50 pounds of fuel remaining.

S/C Rog.

HOU Read out electrical.

S/C Electrical read out.

HOU Did you get the counts on that quantity readout.

S/C CA09?

HOU That is correct.

S/C Roger.

Do you want them now?

HOU Please.

S/C Okay

This is Gemini Control. That probably wraps up the conversation for the state-side pass although the spacecraft is only now over the east coast of the United States. But we do expect them to go ahead with the plan to maintain relative radio silence for the next couple of hour to give the crew a chance to cap-nat. The latest onboard propellant quantity reading for fuel is an estimate of 50 pounds and according to the best indications we have now, this is enough to go ahead with the fairly limited experiment program for the day to complete the EVA sometime tomorrow morning, and continue through the planned 70 to 71 hour flight. At 24 hours seven minutes into the flight this is Gemini Control Houston.

END OF TAPE

GEMINI 9A MISSION COMMENTARY, 6/4/66, 8:20 AM TAPE 98 PAGE 1

This is Gemini Control at 24 hours and 40 minutes into the flight. Gemini 9 now in its 16th revolution, is passing over the Tananarive tracking station. We have no voice communication with the spacecraft and we do not intend to raise the spacecraft at this time. Nor at the Carnarvon station which will be next. The ATDA target is on its 45 revolution and it is estimated that it will have a life time orbit of 31 days. Norad reports the Titan II second stage re-entered over the western Atlantic off the coast of South America about 4:26 AM CST today. Our crew is now in an eat and rest period that is expected to last for the next two revs or approximately three hours. When this period is over, they will conduct the D-14 UHF-VHF polarization experiment, designed to measure the electron content of the ionosphere below the spacecraft. Our last contact with the crew came over the states on rev 14. It was very short and we will play back that tape now.

S/C We will leave the platform on.

HOU Roger, understand. Tell Geno I am sorry about his Cubs last night, but we will try again tonight.

S/C Well, you know how the Cubs are. I will be a winner tomorrow, no matter how you look at it, Dick.

HOU I am sure you will.

S/C Yeah, try a little harder. I lost two out of two yesterday.

HOU Say again.

S/C The Astros and the Cubs.

HOU Well, I lost one of them with you, so that is pretty close. Chris said the Yankees won.

S/C Say again.

HOU The Yankees won yesterday.

S/C Thanks a lot. Who are they?

HOU You not only got the wrong teams, you got the wrong league.

S/C Yankee who?

HOU Good night.

AFD Canary, AFD.

Canary Cap Com, AFD.

CYI AFD, Canary, go ahead.

AFD Okay, I have an MI coming. TIF for OBC summary. Forget that we just turned the computer off .

CYI Okay, will do.

AFD And we want you to remain completely silent during the pass.

CYI Roger.

AFD Turn your speaker off.

CYI I can't find the damn thing. I can't find the dial or I would.

END OF TAPE

This is Gemini Control Houston at 24 hours, 51 minutes into the mission. Within the last few minutes a major flight plan meeting has concluded here in the Mission Control Center, with the following results. For the benefit of newsmen we think we should pause a moment or two - I think you would want to take notes on some of these times that I am going to read to you. We are going to cover the activities through approximately the next 24 hours, up to about noon tomorrow. Now we'll give you the times in elapsed time of the mission, also in Central Standard Time. The first time reference will be in Ground Elapsed Time, the second in Central Standard Time. The first item, a rest period will continue until 27 hours Elapsed Time. or 10:40 a.m. Central Standard Time. A D-14 Experiment is to be performed at GET of 27 hours, 20 minutes, or 11:00 a.m. Central Standard Time. A S-11 Experiment is programmed for an Elapsed Time of 27 hours and 45 minutes to 28 hours and 25 minutes, or in Central Standard Time, from 11:25 to 12:05. A D-14 Experiment is planned at 28 hours and 30 minutes, or 12:10 Central Standard Time. Another S-11 is scheduled at 29 hours, 15 minutes to 29 hours, 25 minutes, Central Standard Time would be 12:55 to 1:35 p.m. A D-14 Experiment is scheduled at 30 hours elapsed time, that's 1:40 Central Standard Time. An S-11 Experiment at 30 hours, 45 minutes to 31 hours 25 minutes, and in Central Standard Time that 2:25 to 3:05 p.m. D-14 Experiment scheduled at 31 hours, 40 minutes, which is 3:20 p.m. Central Standard Time. Another D-14 at 33 hours, 20 minutes, Elapsed Time, which will be 5 p.m. Houston Time. An eat period is scheduled at 33 hours, 30 minutes to 34 hours and 30 minutes which will be 5:10 to 6:10 p.m. Central Standard Time. The evening sleep period is planned to begin at 34 hours and 30 minutes and last for 10 hours to 44 hours and 30 minutes into the mission, or in Houston time from 6:10 p.m. until 4:10 a.m. tomorrow morning. An eat period to follow the sleep period is scheduled

44 hours and 30 minutes to 45 hours and 30 minutes and this will be in Houston time from 4:10 til 5:10 a.m. EVA preparations are scheduled to begin at 45 hours and 30 minutes Elapsed Time and extend until 49 hours and 30 minutes Elapsed Time, converted to Houston Time that will be 5:10 a.m. to 9:10 a.m. Our present plan is to open the hatch at 49 hours and 30 minutes into the flight, this would be toward the end of revolution 31, just off the West Coast of the United States, and the time on that would be 9:10 a.m. Now an additional factor in the planning - if for some reason the preparation goes a little bit slower than usual, or if the unforeseen occurs, and the crew needs additional time, before they open the hatch and begin their Extravehicular Activity, we can easily slip one revolution and still maintain full stateside range tracking during the EVA exercises. Once again, open the hatch - planned ground Elapsed Time, 49 hours 30 minutes toward the end of revolution 31. The ingress - when Cernan will reenter the spacecraft, is presently ticketed for 52 hours elapsed time. This will be in rev 33, we do not have a ground corresponding point available just right now, but we will later. Elapsed time of 52 hours in rev 33, the Houston Time of that event will be 11:40 a.m. This is Gemini Control Houston.

END OF TAPE

GEMINI 9a(2) MISSION COMMENTARY, 6/4/66, 8:50 AM TAPE 100 PAGE 1

This is Gemini Control at 25 hours 10 minutes into our flight. Gemini 9 is now passing beyond the Australian continent and moving up toward the Canton Island tracking station. It is on its 16th revolution. Our Flight Director, Gene Kranz, in this quiet period here where we are not raising the spacecraft and allowing the crew to rest presented Bill Garvan, our Carnarvon Cap Com, with a little bit of a surprise informing him that in the unlikely event that the Houston Mission Control center should have a difficulty and be forced to drop out of the direction of this flight, during the EVA, he informed Bill Garvan that Carnarvon or Hawaii would then have to take over as Flight Director. And went over with Garvan the things that he would expect Garvan to communicate to the crew and also relay back here to Houston. Now the Mission Control Center in Houston is backed up to avoid such a difficulty in many ways. However, Flight Director Gene Kranz, is attempting to cover all phases and this is a little bit of forward thinking. It was a surprise to Bill Garvan and I am sure it will be a surprise to the Hawaii spacecraft communicator as well. This is Gemini Control. We are 25 hours 12 minutes into our flight.

END OF TAPE

GEMINI 9A (2) MISSION COMMENTARY, 6/4/66, 9:20 A. M

This is Gemini Control at 25 hours and 40 minutes into the flight. Gemini 9 is now passing over the stateside tracking stations ending its fifteenth revolution, rather, it should be beginning its sixteenth very shortly. We have no - we have had no communication for the past hour with the crew. Our target is now trailing the spacecraft by approximately 18 miles. It's orbit is about one and one half miles above that of the spacecraft. According to our Flight Surgeon, Dr. Berry, the crew is asleep and appears to be rather soundly asleep at this time. There are no plans to communicate with the crew for approximately another one and one half to two hours. This is Gemini Control, 25 hours, 41 minutes into the flight.

END OF TAPE

GEMINI 9A MISSION COMMENTARY, 6/4/66 9:40 AM TAPE 102 PAGE 1

This is Gemini Control 26 hours and one minute into the flight. Our spacecraft is now in its 16th revolution and is about one and one half miles below the target and is trailing by some - the target is trailing by some 20 miles. We have had no voice communications with the spacecraft for the past hour and one half. The spacecraft orbit is 157.9 by 161.0. 157.9 nautical miles by 161 nautical miles. The target's orbit is 161.1 by 159.3. The information we have from our flight surgeon is that the crew is asleep and appears to be in a rather sound sleep. The spacecraft is now passing over the Ascension Island tracking station and we have some quantities to give you concerning the ECS oxygen and fuel cell oxygen, the total remaining aboard the spacecraft combined total 67 percent. Fuel cell hydrogen 37.6 percent. Our flight director estimates that there is enough fuel aboard the spacecraft to complete the Gemini 9 mission. This is Gemini Control. We will be in a rest period for the crew for approximately another one hour and one half. Following the rest period the crew will take part in the S-11 and D-14 experiments. This is Gemini Control 26 hours and three minutes into the flight.

END OF TAPE

GEMINI 9A (2) MISSION COMMENTARY, 6/4/66, 9:50 A. M.

This is Gemini Control at 26 hours and 10 minutes into the flight. Gemini 9 is now in its seventeenth revolution and passing over the southern part of Africa. The spacecraft is approximately one and one half miles below the target vehicle. The target vehicle is trailing by some twenty miles. Here in the Mission Control Center, activity is at a very low pitch. Our Flight Controllers are preparing for the burst of activity that will follow this rest period which will extend for approximately another hour and 15 to 30 minutes. And the rest period, of course, will be followed by activities connected with the S-11 and the D-14 experiments. And so at this time, our Flight Controllers are making their preparations to take part in those maneuvers. Our Flight Surgeon reports to us that the crew is asleep and appear to be sleeping rather soundly. This is Gemini Control, 26 hours and 11 minutes into the flight.

END OF TAPE

GEMINI 9A MISSION COMMENTARY, 6/4/66, 10:20 AM, TAPE 104 PAGE 1

This is Mission Control at 26 hours and 40 minutes into our flight. Gemini 9 has just passed beyond voice range of the Carnarvon tracking station. At that time our spacecraft communicator did raise the spacecraft crew and talk to Gene Cernan. He gave Cernan some updated times for the D-14 experiment, which will take place at 27:20 over Hawaii. That will be at approximately 10:40 CST. The D-14 experiment, to do this crew turns a switch on in the spacecraft. This extends an antenna, which sends a standard radio frequency to the ground station at Hawaii. Stafford will hold the spacecraft steady during the pass and the ground stations pick up the radio frequency signal emitted by the spacecraft and on the ground they measure the electron contents of the ionosphere below the spacecraft by measuring the Faraday rotation of electromagnetic transmissions from the spacecraft. At this time, we will play back the tape voice communication between Carnarvon and Gemini 9.

CRO	Flight Carnarvon
HOU	Go Carnarvon
CRO	Both astronauts appear to be sleeping. Shall we wake them up now.
HOU	That is affirmative. Go ahead.
CRO	Roger.
CRO	Gemini 9, Carnarvon Cap Com.
	Gemini 9, Carnarvon Cap Com.
HOU	Stand by, they probably have their head sets on.
S/C	This is Gemini 9, go.
CRO	Okay, stand by to copy your flight plan update.

S/C Okay, give me a minute. Roger. Okay Carnarvon, fire away.

CRO Roger, the title is D-14, that is Delta 14 926 5234, mode number Alpha Romeo, remarks extend antenna. The second item D-14, time 27:16:33 mode number Alpha Romeo, the third item D-14 time 28:28:25. That is all.

S/C Okay, we got three D-14's. One at 26:52:34 Alpha Romeo, 26:16:33 Alpha Romeo, ...

CRO Negative.

S/C 29:28:25 Alpha Lema.

CRO Negative.

The third D-14 is 28:28:25 Alpha Lema.

S/C Roger, got down, 28:28:25 Alpha Lema.

CRO The second one is 27:16:33.

S/C Okay, Gemini 9 calling Cap Com.

Go ahead Carnarvon.

CRO That second D-14 is 27:16:33.

S/C Roger, I got it, 27:16:33.

CRO Roger, Alpha Romeo.

S/C Got it.

Thanks for the rest. It sure helped.

CRO You're welcome.

CRO Gemini 9 Carnarvon we are one minute LOS.

S/C Roger, Carnarvon, we are aligning the platform so we can get the ...

CRO Roger.

HOU Carnarvon, can we have an LOS main, please?

CRO Roger.

Carnarvon has LOS on Gemini vehicle.

HOU Roger.

CRO LOS on ATDA.

HOU Well done out there.

That was taped voice comminications between Carnarvon and Gemini 9. The capsule communicator Carnarvon was William Brizzolara and this was Williams' first time to communicate with an American astronaut or any other kind of astronaut. This was his first attempt and he did a very good job. This is Gemini Control. Our spacecraft has now moved beyond the tracking range of Carnarvon and we are 26 hours 45 minutes into the mission.

END OF TAPE

This is Gemini Control , 27 hours into our flight. Gemini 9 is passing over the Hawaiian tracking station. We have established communications with the crew. Tom Stafford reported to us that he is in the midst of his D-14 UHF,VHF polarization experiment. In this experiment the flight crew merely turns a switch in the spacecraft. This switch extends an antenna which sends a standard radio frequency to the ground receiving station at Hawaii. Stafford then holds the spacecraft steady during the pass and the ground stations pickup the signal and measure the electron content of the ionosphere below the spacecraft by measuring what is termed the Faraday rotation of electomagnetic transmissions that are emitted from the spacecraft. Gemini 9 is now on its 17th revolution over the earth and very shortly will begin its 18th revolution. This is Gemini Control and at this time we will play back for you the taped voice communication between Hawaii and Gemini 9.

HAW Gemini 9, Hawaii. All systems are go on the ground. Standing by.

S/C Roger. We're in the middle of D-14.

HAW Roger.

S/C Hawaii, Gemini 9.

HAW Go ahead.

S/C Where I go to fuel cell H2 quantity, I get zero.

HAW Standby.

Okay. We're getting the same readout on the ground but our pressure reading is 250 which is normal.

S/C Understand your getting a zero quantity reading on the ground but a normal pressure reading.

HAW That's affirm.

S/C Okay. Would you keep a good look Don?

HAW Sure will. Why don't you leave it in that position until you get across the states.

S/C Okay.

HAW Flight, Hawaii

HOU Flight.

HAW Okay, we confirm its zero both the fuel ceil H2 quantity both on the meter and the TCM station but we're getting a normal 250 psi on the meter. pressure.

HOU Roger.

HAW Flight, Hawaii

HOU Go ahead Hawaii

HAW Okay, our D-14 people are up and receiving good data.

HOU Roger.

END OF TAPE.

GEMINI 9A MISSION COMMENTARY, 6/4/66, 10:45 A. M.

This is Gemini Control, 27 hours, five minutes into our flight. We have established voice communication through the California station with Gemini 9 and we switch now to give you that conversation live.

HOU — S-11 at 29:16:27. Sequence number 01. S-11, 29:49:02. Sequence, 03. D-14, 30:04:25. Mode, Alpha Lima. S-11, 30:46:45. Sequence, 02. S-11, 31:19:20. Sequence, 03. D-14, 31:39:57. Mode, Alpha Lima. S-11, 32:17:04. Sequence, 01. S-11, 32:49:39. Sequence, 03. D-14, 33:15:34. Alpha Romeo. Over.

S/C — Roger, Houston. Gemini 9. We had a bit of trouble on the first three. Would you repeat those three?

HOU — Roger. S-11, 29:16:27. Sequence, 01. S-11, 29:49:02. Sequence, 03. D-14, 30:04:25. Alpha Lima. Over.

S/C — Okay, we got them all Houston.

HOU — Roger.

S/C — And the fuel cells up here are looking real good. No indication other than the quantity percent.

HOU — Roger, understand. The quantity - the pressures are looking good down here. We'll catch this over Texas in a few seconds.

.....	Guaymas remote, California local
GYM	Guaymas remote.
CAL	Cal local.
.....	Readout, electrical.
.....	Electrical readout.
...	Would you please read out CA 09 for me.
...	Roger, stand by. Electrical readout.
...	Go.
...	Okay. CA 09 reads 5 PCM counts.
...	How many? Repeat, please.
...	Five.
...	Readout, would you repeat please on CA 09?
...	Roger, CA 09 reads 5 PCM counts.
S/C	This is Gemini 9.
HOU	Gemini 9, Houston. Go.
S/C	Roger, just for information, our main batteries read in order 21 24 22 and 23 both respectively.
HOU	This is Houston. Roger, copy.
...	Readout, electrical.
...	Electrical readout.
...	How's it reading right now?
...	It's the same.
HOU	Gemini 9, Houston.
S/C	Go, Houston.
HOU	Roger. Is quantity read switch fuel cell H_2?
S/C	It's fuel cell H_2 at this time.

HOU	Roger. Calibrate number one for 30 seconds.
S/C	Calibrate number one for 30 seconds. Mark.
HOU	Roger.
...	Electrical readout?
...	Roger. It's gone up 68.
...	68?
...	68, roger.
...	67.
...	Texas remote, Guaymas local.
TEX	Texas remote.
GYM	Guaymas local.
S/C	Mark 30 seconds.
HOU	Roger. Calibrate number two, 30 seconds.
...	Electrical readout.
...	Go readout.
...	It's back down to five.
S/C	Mark it.
HOU	Roger.
...	Electrical readout.
...	Go. It reads 96. 153 192 Steady on 192.
S/C	Mark it, 30 seconds.
HOU	Roger, understand. 30 second mark.
...	Readout, electrical.
...	Electrical readout.
...	Electrical readout read 108.
S/C	Houston, let us know when we can have our computer

back. Got a D-14 coming up.

HOU — Roger, leave it at pre-launch. We're sending the accelerometer bias at this time.

S/C — Roger.....your update.

HOU — Roger, let us look at it a minute.

S/C — Okay. Was that 27:16:33 a midtime for D-14?

HOU — Roger. 27:16:33.

S/C — Okay.

HOU — Gemini 9, Houston.

S/C — Go, Houston.

HOU — Roger. Your accelerometer bias update looks good. You can have your computer back.

S/C — Thank you.

HOU — Gemini 9, Houston.

S/C — Go, Houston.

HOU — Roger, on your fuel cell H_2, temperatures and pressures look real good and they are steady. We suspect we may have trouble with the sensor in the tank.

S/C — Okay, Dick, thanks a lot. You want us to go back an inch or two off?

HOU — That's affirmative.

S/C — ...the quantity reads off at this time.

HOU — Roger. You might check it from time to time. I may come back in.

S/C — Okay.

This is Gemini Control. We are listening to live voice communication between Gemini 9 as it passes over the states.

... This is CM 2, for a comp check with the ELSS heaters in operation. 1 2 3 4 5 - 5 4 3 2 1. How do you read, over.

HOU Roger, read you loud and clear.

END OF TAPE

That appears to be all the communication that we will have with Gemini 9 as it makes this state-side pass. Gemini 9 is beginning its 18 revolution around the earth and as you heard the systems aboard the spacecraft looked good to our Flight Controller. They feel they may have some trouble with the sensing devices in the tank aboard the spacecraft; the fuel cells do look good, the accelerator bias check checked out very well. Stafford and Cernan have another D-14 experiment coming up at Antigua which they will reach very shortly. This again is the UHF-VHF polarization experiment and the activity of the crew is merely to turn the switch in the spacecraft, which extends an antenna and automatically a standard radio frequency is sent to the ground receiving station at Antigua. During the pass, Stafford will hold the spacecraft steady. Measurements are made from the ground. This is Gemini Control 27 hours and 17 minutes into the flight.

END OF TAPE

This is Gemini Control at 27 hours and 40 minutes into the flight. Gemini 9 is now passing over the tracking station at Ascension. We have had no voice communication recently since we left Antigua. At that time we did get a report that the ground data at Antigua on the D-14 experiment looked good. Dick Gordon our spacecraft communicator, Astronaut Dick Gordon, who is a member of the Gemini 11 Flight Crew with Pete Conrad. Gordon being our spacecraft communicator today talking to Gene Cernan in Gemini 9 was passing up some updates, time updates for start of the S-11 experiments. He gave him several of them. Cernan jokingly remarked to Gordon "I see you are looking out for your favored S-11 crew." And of course, S-11 is an experiment that is programmed for both Gemini 9 and Gemini 11. I think Gene Cernan was jokingly refering to Gordon as having loaded up most of the experiments on this Gemini 9 flight. We conducted a fuel cell purge and it went good, or it was going good at the time we heard a report from Stafford. At this time we will play back the taped voice communication between Dick Gordon and Gemini 9 as they passed over the Antigua Station.

S/C Houston, Gemini 9. The D-14 experiment being received.

HOU Standby, we received it at Hawaii, let me check.

HOU Gemini 9, Houston.

S/C Go ahead Houston.

HOU Roger 9. We can't tell you how the data is being received at Antigua until after the pass. We'll let

HOU you know though. We'll have a fuel cell purge at Ascension at approximately 27:33:00 and we'll purge section two first. Over.

S/C Roger. Understand, fuel cell purge 27:33:00 at section two first. I've been alternating these sections by the way on the purges.

HOU Roger , we understand.

S/C I see by that last experiment update you're watching out for your favorite 11 crew.

HOU Yes sir, got lots of those.

G/T LOS Grand Turk

HOU Gemini 9, Houston.

S/C Go ahead Houston.

HOU Roger, we're thirty seconds to LOS and we did get data at Antigua on D-14.

S/C You say you did get good data.

HOU Thats affirmative

S/C Good

ANT LOS Antigua

HOU Gemini 9, Houston. Standing by for your fuel cell purge.

HOU Gemini 9, Houston.

S/C Houston go.

HOU Roger Tom. How is the fuel cell purge looking?

S/C Say again.

HOU How is the fuel cell purge going?

S/C Great.

HOU Roger understand.

That was voice communication between Gemini 9 and our Control Center in Houston. We did follow the Antigua tape with the short message that we did receive as the spacecraft passed over the Ascension Tracking Station. This is Gemini Control, 27 hours, 44 minutes into the flight.

END OF TAPE

GEMINI 9A MISSION COMMENTARY, 6/4/66, 11:40 AM TAPE 109 PAGE 1

This is Gemini Control. We are 28 hours into our flight. Gemini 9 is now on its 18th revolution and is passing over the Indian Ocean. Dr. Owen Coons, our Flight Surgeon, has told us that the command pilot got two hours of good sleep during that rest period we had earlier in the afternoon and the pilot had approximately two and one quarter hours of sleep. Both crewmen ate a meal before going to sleep. Dr. Coons feels sure that both men will get a good night's rest on their next sleep period which begins after their next meal at 31 hours ground elapsed time. The D-14 experiments which we have been conducting over Hawaii and Antigua, require Tom Stafford to power up the spacecraft and hold it steady as he passes over Hawaii and Antigua. This maneuver requires only about one pound of OAMS fuel for each pass. And since we have approximately 50 pounds onboard this is entirely adequate to complete the Gemini 9 mission without any problems from the fuel supply. This is Gemini Control 28 hours one minute into the mission.

END OF TAPE

This is Gemini Control at 28 hours and 10 minutes into the flight. Gemini 9 is passing over the Carnarvon, Australia Tracking Station range. Some of the little byplay that went on, Bill Garvin, the Spacecraft Communicator there asked Tom Stafford is he'd a chance to look at the Australian countryside. Tom said "no, we have not, we've been to busy." The spacecraft is on its 18th revolution around the earth. At this time we will play back the taped voice communication between Carnarvon and Gemini 9.

Carnarvon, AFD we're standing by

CRO Carnarvon roger.

HOU Hey Bill we got your switch. We're comparing it against our numbers and we'll let you know about the results.

CRO Ok. Remember ours are kind of ball park. We don't have all that .....

HOU Our stuff is being done by hand to Bill.

CRO Ok.

CRO Carnarvon has acq aid contact.

HOU Roger Carnarvon

CRO They have TM showing on both birds

HOU Roger

CRO All systems are go

CRO Gemini 9, Carnarvon Cap Com. We have nothing for you this pass. We'll be standing by.

S/C Roger Carnarvon

CRO We do have one question for you Tom.

S/C Shoot

CRO The local folks down here are wondering if you had a chance to see much of Australia?

S/C No, not really. It's been pretty much looking at other - at the ATDA on the rendezvous and its been kind of cloudy too.

CRO Roger.

S/C You had a few thunderstorms around here, we can tell that.

CRO Yea, tonight is the first time we've had rain in about nine months.

S/C We can see it lightning down there.
Say Bill, when did they get you off your favorite boat and into Australia?

CRO Well I used to put you guys to bed all the time, so now they let me wake you up.

S/C Sorry about that two week delay.

CRO Ah, its pretty rough down here.
Flight, Carnarvon

HOU Go ahead Carnarvon.

CRO Looks real good.

HOU Roger

That was taped voice communication between Bill Garvin our Spacecraft Communicator at Carnarvon and Gemini 9, Tom Stafford. The only eventful item we have coming up in the immediate future on our flight plan, as Gemini 9 comes up over Hawaii we will have another D-14

experiment. This as you may remember the flight crew will turn on a switch in the spacecraft to extend an antenna which sends a standard radio frequency to the ground receiving station at Hawaii. The purpose of the experiment is to measure the electron content of the ionosphere below the spacecraft. This is Gemini Control at 28 hours, 13 minutes into the flight.

END OF TAPE

This is Gemini Control at 28 hours and 40 minutes into our mission. Gemini 9 is now coming up state side and is within voice range of the California tracking station and we have just acquired contact. Gemini 9 is in its 18th revolution. Over Hawaii the crew performed another D-14 experiment. The D-14 experiment is the measurement of the electron content of the ionosphere below the spacecraft. This is measured on the ground by a ground station. Coming up on the flight plan we have in approximately one hour and a half - about three quarters of an hour we have an S-11 experiment. The S-11 experiment is a photographic experiment. The purpose is to photograph the night time air glow and also the sun rise twilight and any unusual night phenomena target of opportunity. With Command Pilot Tom Stafford aligning the spacecraft small end forward on the horizon using a star as a reference point, Pilot Gene Cernan will align his camera on that horizon using the same star and he will take a series of three pictures of the eastern western and southern horizons. He will use a 70 mm Maurer camera with an f .95 lens. He takes the pictures with and without filters at various exposures. The pilot also photographs the thrusters as they are firing. This star is used for reference during this experiment will be A-L-I-O-T-H, which is commonly referred to as the North Pole Star, and A-C-H-E-R-N-A-R, commonly referred to as the South Pole Star. This is Gemini Control, 28 hours 42 minutes into the mission.

END OF TAPE

This is Gemini Control at 29 hours into our flight. As the spacecraft came over the stateside on this last revolution finishing up the eighteenth revolution, we had a status report of the spacecraft systems as they read out on the ground. Our spacecraft communicator Gordon advised the Gemini 9 crew that the PCM tape recorder onboard has malfunctioned. At least, we are not able to get readouts on the ground and they advised the crew to leave it off - turn it off - until EVA. We will not attempt to get any data from it until the EVA begins tomorrow, and we will also use it for reentry. Also, they advised the crew the fuel tank quantity fuel sensor appears to be inoperable aboard the spacecraft, that is, we are getting on the ground good indications of their fuel but the sensor which tells the crew how much they have appears to be off. The ground says there is no leak in the tanks and, therefore, it must be the sensors. The fuel cells and the stacks are bearing the load well. We also passed up a flight plan update as follows: At 32:59 GET there will be a crew status report, a fuel cell purge and a cryogenic quantity readout. At 33:30 they will power down the spacecraft and begin an eat period which will last for one hour until 34:30. Following the eat period, at 34:30, they will begin the sleep period for ten hours until 44:30. The other items on our flight plan were to complete the D-14 experiment which we have gone over several times. This is the measurement of the electron content of the ionosphere below the spacecraft. And at this time the flight is proceeding normally. The spacecraft is on its nineteenth revolution, has just begun it, is passing over the northern part of South America. This is Gemini Control. We are now

29 hours, three minutes into the mission and we would like to play back the voiced communication that was made with Gemini 9 as it passed over the states.

HOU — Gemini 9, Houston.

S/C — Houston, Gemini 9.

HOU — Roger, Tom. It looks like another good pass at Hawaii for D-14.

S/C — Roger.

HOU — I have a sequence change to one of your S-11's when you're ready to copy.

S/C — Okay, Stand by. Go.

HOU — Roger. The S-11 at 30:46:45, make that Sequence 01. Over.

S/C — Roger. Got it.

HOU — Okay, we've been looking at your water down here a little bit and E com tells me that we are losing a little bit of nitrogen out of the gas pressure out of the fuel cell regulation system. There is no problem. Surgeon says we can stand to drink a little more of it. We might start tapping it a little bit, if you like.

S/C — Okay. We thought we were doing a pretty good job drinking it. We'll go ahead and concentrate on .....

HOU — Okay, we'll watch you. I think, if you take a little over a long period of time, it'll be the

best way to look at it.

S/C Roger.

HOU And I've got a GNN status here for you if you're interested in all that. We've got down here it looks like as far as the OAMS is concerned, fuel remaining is 48 pounds, oxidizer remaining is about 78, onboard gage is about 11% and useable fuel gives us about 82 pounds. This is plenty of OAMS for attitude control for the rest of the flight plan.

S/C Okay, real good.

HOU On the computer. Seems to us down here that it's working normally at this time. Accelerometer bias update was good. It's almost perfect at this time. That start comp problem we had after the first rendezvous - during the first rendezvous - has not reappeared, and we think that problem might either have been in the start comp button or in the electronic latch internal to the computer.

S/C Okay, roger. That hasn't shown up since that first day.

HOU Okay, we do have a procedure for you when you go to load module 5. We'll play the addresses 25, 26 and 27 and we think we may be able to

correct it in case it shows up but we'll brief you on this when we go to load module four.

S/C Roger. Module four. I thought you said five at first.

HOU I think I did but I meant four.

S/C Roger.

HOU Okay. All your GEMC systems look real good. Temperatures, pressures and voltages all real fine.

S/C Okay, Dick. You'll still kind of keep word with us if we do any activities. We're up full rudders in both C-Bands.

HOU Okay, understand. As far as the E com status is concerned, PCM tape recorder has malfunctioned in the playback mode. What we'll do with that thing is just leave it. It looks like it's the beginning of the tape. We'll leave it off until just prior to EVA tomorrow morning and hope that we might be able to get some AMU data on it.

S/C Roger, real fine. Thank you.

HOU And your fuel cell H_2 quantity tank sensor looks like it's gone. Everything else concerning that looks okay. We're going to calculate hydrogen quantity from amp hours and keep you posted

on that one.

S/C Okay. The last we saw of it, Dick, we were real good. We were way up over 80 some per cent this morning.

HOU Okay. It doesn't look to us like there is any leak. The system integrity looks good and we really think it's the sensor in that case. And, it locks like your stacks in the sections are sharing the load real well up there.

S/C Right.

HOU Okay. And cooling loops, both of them look real good and understand you are on both A pumps at this time to keep a little cool.

S/C That's affirm.

HOU Okay. That's really all we have here at this time. We'll be standing by.

S/C Roger.

... Guaymas remote. California local.

GYM Guaymas remote.

CAL California local.

HOU 9, Houston.

S/C Houston go ahead.

HOU How about putting your quantity read switch to ECS O_2.

S/C No. They've been reading about 65 - 64 perhaps.

HOU — Understand you're reading 64 and a half percent. Gemini 9, Houston. Go to fuel cell O_2.

S/C — Fuel cell O_2 right.

HOU — Gemini 9, Houston. Go to fuel cell hydrogen.

S/C — Fuel cell hydrogen.

HOU — Gemini 9, Houston. Go to quantity reads off. Everything else looks good down here.

S/C — Quantity read to off. Could you give us the latest GET hack, please.

HOU — Roger. I'll give you a hack at 28:47:20. Mark 20.

S/C — Rog. We're right on.

HOU — Okay. I have a flight plan update for you.

S/C — Go.

... — Texas remote, Guaymas local.

TEX — Texas remote.

S/C — Go ahead, Dick.

HOU — Roger. At CSQ, 32:59:00, we will expect a crew status report. We will have a fuel cell purge and a cryo quantity readout again.

S/C — What station is this?

HOU — CSQ at 32:59:00.

S/C — Roger, 32:59:00.

HOU — Roger, then at 33:30:00, you will power down. At 33:30 to 34:30 you will have an eat period and from 34:30 to 44:30, sleep period. Over.

S/C Roger, power down at 32:59:00 and let me see here. We got all the other ones - sleep period started at 44 - 34:30 to 44:30.

HOU Roger. And that power down was at 33:30 and your crew status at CSQ was 32:59.

S/C Roger, have it.

HOU Okay.

S/C Houston, Gemini 9.

HOU 9, Houston. Go.

S/C We'd like to stay powered up for about 15 minutes after initial power down to complete the D-14. We could do a much better job with everything up.

HOU Roger, understand. The D-14 at 33:15:34.

S/C Roger.

HOU Roger, I agree with that. 9, Houston.

S/C Go ahead.

HOU Roger, Tom. We didn't have your powering down until 33:30 which is 15 minutes after your last D-14.

S/C Okay, right. We got it.

HOU Okay.

AOS Antigua.

LOS Grand Turk.

This is Gemini Control at 29 hours and 11 minutes and since that stateside pass which we've taped and played back for you, we have some

further communication with Gemini 9 as it passed over the Rose Knot tracking ship, and we now will play that tape.

RKV — We have TM solid on the ATDA, both vehicles look good.

HOU — Roger.

RKV — Gemini 9, RKV Cap Com.

S/C — RKV, let her go.

RKV — Roger. I have a flight plan - I mean a PLA update for you.

S/C — RKV, go ahead.

RKV — Roger. Area 21 dash 3: GETRC, 32:37:55. RET 400 K, 21 + 06. RETRB 27 11. Weather marginal. Area 22 dash 3: 34:13:20. 21 + 17. 27 + 16. Weather marginal. Area 23 dash 3: 35:48:56. 21 + 24. 27 + 37 . Weather marginal. Area 24 Bravo: 37:42:12. 21 + 21. 27 + 21. Weather good. Area 25 Bravo: 39:17:54. 21 + 26. 27 + 25. Weather good. Area 26 dash 2: 39:56:30. 20 + 50. 26 + 48. Weather good. Area 27 dash 2....01:32:04. 20 + 52. 27 + 04. Weather good. Area 28 dash 1 Charlie: 43:00:42. 20 + 50. 26 + 57. Weather good. Bank angles for all areas in roll left 85, roll right 95. No sep maneuver for any area.

S/C What I missed was just the GETRC in area 22 dash 3.

RKV Say again.

S/C Roger. The GETRC of area 22 dash 3.

RKV Roger. That is 34:13:20.

S/C Roger, out.

RKV Rog. We have nothing further for you Gemini 9. You're looking good here on the ground. We'll be standing by. Both vehicles looking real good.

That was taped voice communication between Gemini 9 and the Rose Knot tracking ship. At this time Gemini 9 is moving over the South Atlantic approaching the southern coast of the southern part of Africa and the west coast. We had one other brief communication with the spacecraft as it passed over the Ascension island tracking range and the report then from Tom Stafford - he made a very short report. He merely said there is a full moon on the horizon. He did not describe it otherwise. This is Gemini Control, 29 hours, 17 minutes into the mission.

END OF TAPE